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The Bottom Line on Ten Big Mergers
Bill Simon: Out of the News, In the Money
What's Detaining the Office of the Future

$3.00 May 3, 1982

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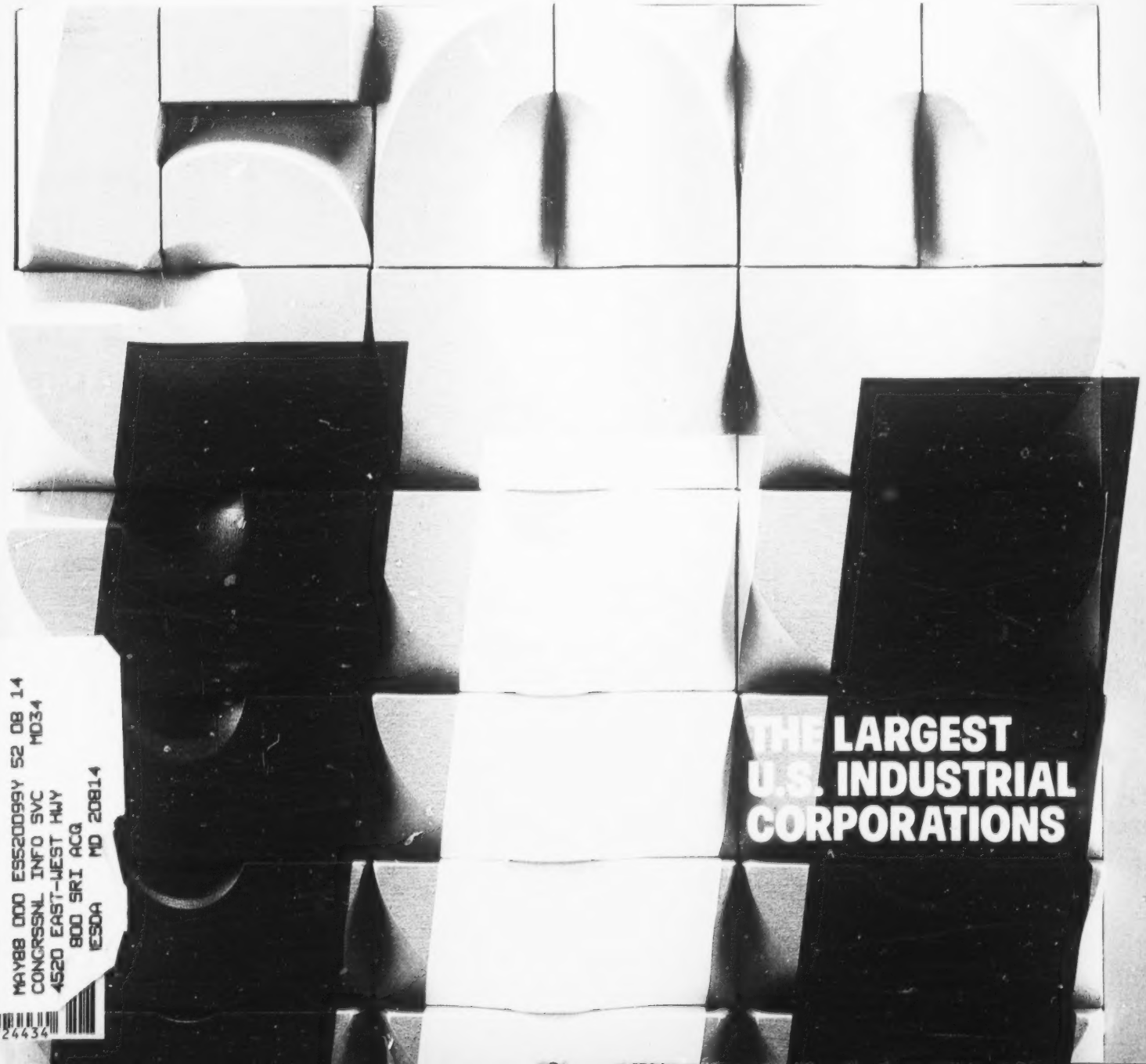

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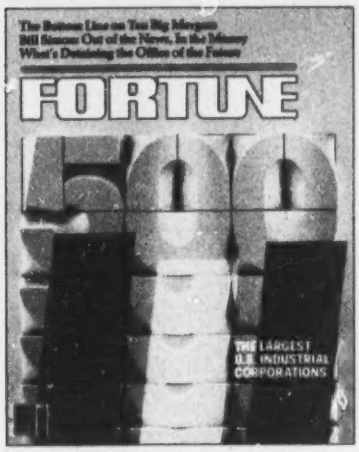

The cover painting by Steve Tarantal, seven more of whose works are in the portfolio beginning on page 110, is made up of 23 wooden forms over which canvas has been stretched and painted with acrylics. It was photographed by Seymour Mednick. Various features relating to the FORTUNE 500 are highlighted at right in red.

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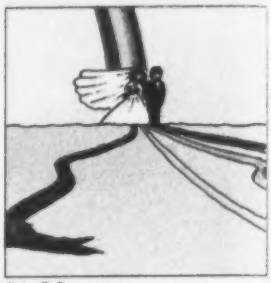

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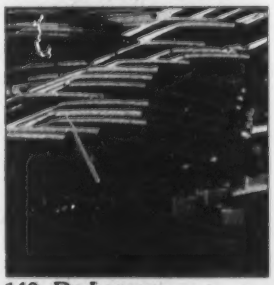

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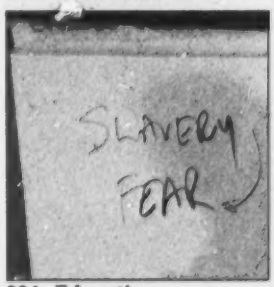

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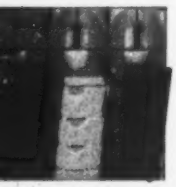


by ARTHUR M. LOUIS

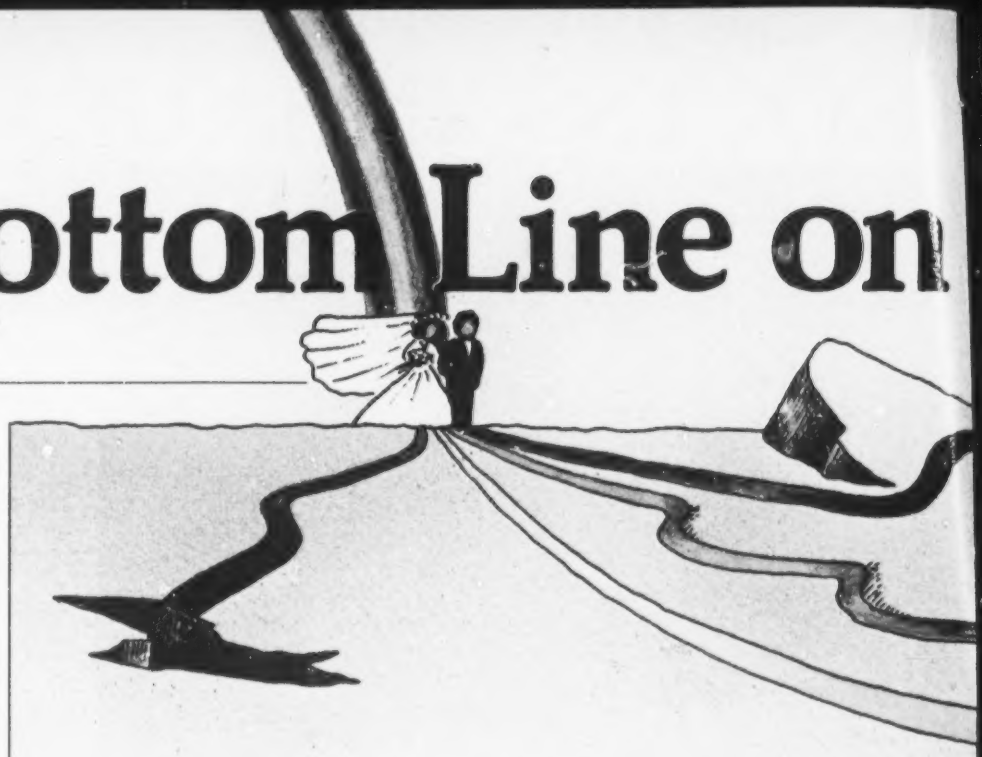
Do conglomerate mergers make sense? That oft-debated question has taken on new urgency, what with the profusion of huge and often hasty corporate intermarriages—between steel and oil companies, construction and mining companies, electronics and chemical companies. The executives who concoct these mergers typically claim that diversification reduces risk and brings greater stability. But many critics insist that conglomerate mergers *increase* risk by plunging the acquirer and its management into industries—and problems—about which they know little or nothing, often through deals made at exorbitant prices. The critics also contend that these mergers represent a socially unproductive use of capital, and suggest that the executives may simply be indulging their egos, jeopardizing the shareholders' money to inflate their own importance in the business world. As an irate stockholder once complained to the acquisitive Robert W. Sarnoff, then the chairman of RCA: "Tell me, mister, where is it going to end? You are going to build an empire, and look what happened to all the empires!"

The debate seems unending, but the outlines of a conclusion might emerge from studying old mergers and seeing how well they worked out. This article is intended as a step in that direction.

FORTUNE scrutinized the ten biggest conglomerate acquisitions made during 1971 by companies on that year's list of the 500 largest industrial corporations (see page 260 for the latest list). We defined "conglomerate acquisition" as any corporate marriage that gave the acquiring company a significant stake in a new line of business. None of the acquisitions in our study was exceptionally large by today's standards. This can be attributed partly to the inflation since 1971, but mainly to the fact that relatively few companies were willing to take a big plunge so soon after

Research associate: Ford S. Worthy

Claire Schumacher



THE TEN BIGGEST CONGLOMERATE ACQUISITIONS MADE BY 1971's "500"

Acquiring company Acquired company	Price	% of book value	Industry	Acquirer's 1981 profits Acquisition's share (est.)
Schering[1] Plough	$644 million in common and preferred stock	815%	Drugs Cosmetics, toiletries	$179 million $ 44 million
Heublein Kentucky Fried Chicken	$237 million in common stock	427%	Alcoholic beverages Fast-food outlets	$ 88 million $ 22 million
Squibb Lanvin-Charles of the Ritz	$206 million in common stock	426%	Drugs Cosmetics, fragrances	$105 million $ 15 million
RCA Coronet Industries	$187 million in common stock	515%	Electronics Carpets	$ 54 million $ 5 million
Northwest Industries Buckingham	$120 million in cash and notes	736%	Conglomerate Alcoholic beverages	$419 million $ 4 million
ITT O.M. Scott & Sons	$108 million in common stock	420%	Conglomerate Lawn-care products	$677 million $ 13 million
American Cyanamid Shulton	$106 million in common stock	169%	Chemicals, drugs Toiletries, cosmetics	$197 million $ 14 million
General Host Cudahy	$80 million in cash	141%	Food, retail stores Meatpacking	$ 14 million Not meaningful
Nabisco[2] J.B. Williams	$72 million in common stock	Not available	Food Toiletries	$266 million $ 2 million
Johns-Manville[3] Holophane	$62 million in common stock	324%	Building products Lighting fixtures	$ 60 million $ 8 million

[1] Now called Schering-Plough. [2] Now called Nabisco Brands. [3] Now called Manville.

Ten Big Mergers

1981 earnings per share of acquirer		What the acquirer said about the acquisition	
Actual	**Hypothetical** (if acquisition hadn't been made)	**Then**	**Recently**
$3.31	$4.08	The two companies complement each other well; Schering's research and international operations will benefit Plough.	Schering's international people didn't adapt well to consumer products. That synergism took longer than we thought.
$4.09	$4.11	Gives us a strong position in fast foods; provides immediate new dimensions and promising prospects.	We learned the hard way; we made our share of mistakes; we took too long to move down the learning curve.
$2.10	$2.01	The proxy statement can't spell out the growth opportunities that we believe lie ahead of Lanvin-Charles of the Ritz.	We made some mistakes because we didn't understand the business. But our direction was correct.
($.19)	($.28)	Should provide valuable diversification in an important consumer growth area.	We will consider the sale of Coronet when market conditions warrant.
$14.20	Not calculable	Buckingham is a fine company with a strong earnings record.	Of importance in 1981 was the unsolicited cash sale of our beverages segment; sale was a proper strategic move.
$4.58	$4.54	[ITT, perhaps because it was under antitrust attack in 1971, did not even issue a press release when Scott was acquired.]	O.M. Scott is a leader in lawn care and gardening; its strength is evident in its higher revenues.
$4.11	$4.08	Brought us a fine name with an excellent product line.	We'd be a much more cyclical company if we didn't have Shulton. Synergy in research took too long to come.
$2.95	Not calculable	Represents a significant step toward our goal of acquiring businesses with proven earnings.	The divestiture of Cudahy's meat business will minimize our vulnerability to this cyclical, commodity-driven business.
$4.21	$4.36	Represents planned expansion into consumer goods.	[Nabisco would not talk to FORTUNE about J.B. Williams; several Wall Street analysts say Williams may soon be put up for sale.]
$1.53	$1.27	Establishes Johns-Manville as a prominent entity in the field of lighting fixtures and components.	During much of the past decade Holophane has distinguished itself as a contributor to our sales and earnings.

the stock-market collapse of 1970. In the largest deal by far, Schering Corp., a manufacturer of prescription drugs, used $644 million of stock to merge with Plough Inc., which made nonprescription drugs, cosmetics, and toiletries. (Technically, neither company acquired the other; in its study, FORTUNE put Schering, the larger of the two, in the role of acquirer.)

Since the crucial test of any merger is its impact on the bottom line, we tried to measure how the mergers affected the earnings per common share of the acquiring companies. We calculated what the 1981 earnings per share of the acquirers might have been if the mergers had not taken place, and then compared these figures with the actual results.

In the eight cases where companies were acquired with stock, we figured the hypothetical earnings per share this way: From the average number of common shares that the acquirer had outstanding in 1981 we deducted the number that it issued in 1971 for the acquisition. That step stripped the acquisition from the acquirer's 1981 capitalization. We then stripped the acquired company from profits by deducting its estimated 1981 earnings from the acquirer's total earnings applicable to common stock. Finally, we divided the remaining earnings by the remaining shares to produce the hypothetical result. It shows what would have happened if the acquisition hadn't been made, while actual earnings, of course, show what did happen.

continued

An acquisition that improved the acquirer's 1981 per-share earnings is indicated by a line under the actual per-share figure, an acquisition that didn't by a line under the hypothetical figure. The lines show a standoff—a five-five split. The Buckingham and Cudahy deals were clearly unrewarding, though hypothetical results weren't calculable. (Cudahy's 1981 earnings were "not meaningful" because General Host wrote meatpacking off in 1980.) RCA shows a profit of $54 million against a per-share loss because preferred dividends ate up the profit. Coronet, though no big earner in 1981, helped its parent's per-share results because the rest of RCA did so badly.

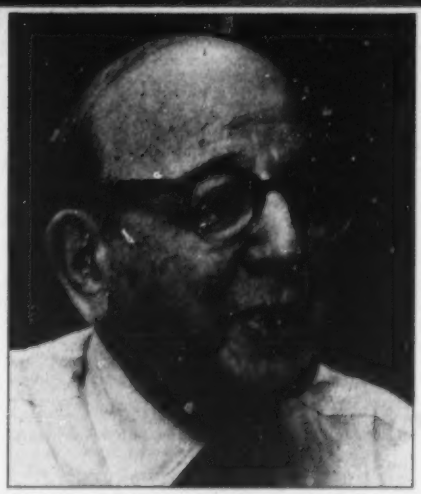
Richard A. Salomon, 70, ran Lanvin-Charles of the Ritz for 35 years, but sold it to Squibb when his sons declined to succeed him.

George L. Schultz, 64, considered selling Shulton to SmithKline but got stuck with Cyanamid instead. At least his citrus grove spurts profits.

The Sellers Took to the Sidelines

Of the ten acquired companies in FORTUNE's merger study, six were still being run by entrepreneurs or heirs at the time the deals were transacted in 1971. One of the proprietors, Matthew B. Rosenhaus, chief executive of the toiletries company J.B. Williams, died in 1980 at age 68. He served to the end as vice chairman of the acquiring company, Nabisco, and as head of the Williams subsidiary. The other five proprietors are still living, and all look back on the mergers with at least some disillusionment.

Abe Plough was the man behind Plough Inc., which merged with Schering Corp. Starting as a teenaged entrepreneur, Plough built his company into a major manufacturer of toiletries, cosmetics, and nonprescription drugs through many small acquisitions—"chips and whetstones" he called them. By the time of the merger, Plough Inc. was grossing around $170 million annually. After the merger, Abe Plough was appointed chairman of the newly formed company, in which he held shares then worth nearly $50 million. But the job was strictly honorary; the chief executive was a Schering man. The new management gradually sold some of Plough Inc.'s less profitable chips and whetstones, which probably distressed Abe Plough. He resigned from the Schering-Plough board in 1976 and hasn't set foot in any company facility since. Still vigorous at 90, he now spends six days a week raising money for his favorite charities.

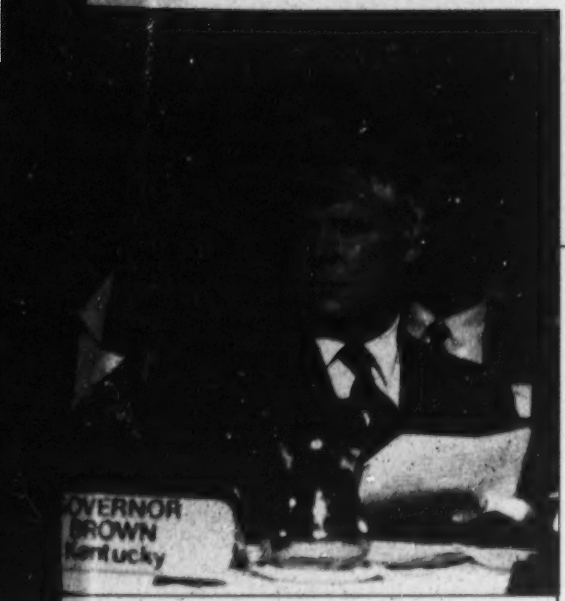


Abe Plough, 90, who once peddled "antiseptic healing oil," might wish some now to bathe his merger wounds.

John Y. Brown Jr., whose Kentucky Fried Chicken Corp. was faltering when he sold it to Heublein, found that he wasn't thereafter too welcome at headquarters. Retained as chairman of Kentucky Fried, though not as boss, he had little to do, and his advice was rarely heeded. He soon liquidated the half million Heublein shares he received in the merger (worth around $20 million at that time), and he left the company in 1973. By that time, he remembers unhappily, KFC was overrun with managers "who had textbooks under their arms on how to run a business." Brown later invested in another fast-food chain, Lum's Inc., bailing out when it started to sink, and started a new chain called Ollie's Trolley, which collapsed. He also invested in professional basketball teams—the Kentucky Colonels, Buffalo Braves, and Boston Celtics. Along the way he married sportscaster Phyllis George, a former Miss America. A Democrat from a politically prominent family, Brown was elected governor of Kentucky in 1979.

The founder of Coronet Industries, Martin "Bud" Seretean, stayed active in management after RCA bought his company. He continued as chief executive of Coronet, a carpet maker, and his 1.5 million RCA shares, then worth nearly $50 million, won him a seat on the board. Seretean became a bitter opponent of Chairman Robert W. Sarnoff, whom he publicly accused of mismanagement. Sarnoff forced Seretean off the board in 1973, and Seretean resigned as chief executive of Coronet, though he remained chairman. (Sarnoff himself was forced to resign two years later.) Now 57, Seretean is helping RCA find a buyer for Coronet.

Two of the erstwhile proprietors, George L. Schultz and Richard A. Salomon, are still directors of the acquiring companies. Schultz, whose father founded Shulton Inc.—best known for its Old Spice line of toiletries—stayed on as president of the subsidiary for more than a year after it merged with American Cyanamid, then dropped all operating



John Y. Brown Jr., 48, made some dubious investments after selling Kentucky Fried. He prefers municipal bonds now that he's a governor.

duties. Today, at 64, he shuttles between a home in New Jersey and another in Florida, where he owns an 840-acre citrus grove. He and his family have sold about two-fifths of the 989,000 Cyanamid shares they received in the merger—"to diversify," he explains. The remaining shares declined in value over the decade, and were recently worth about $15 million. "It's no secret," says Schultz, "that the former Shulton stockholders have been disappointed that the Cyanamid stock hasn't done anything."

Salomon, whose uncle founded the Charles half of Lanvin-Charles of the Ritz, gave up his operating duties after it was bought by Squibb Corp. As a Squibb director he complained in vain when his successor made mistakes that sent Lanvin's profits plummeting. "I was heartsick," he recalls. "Here I had given them a company that I knew was in excellent health, and it was behaving like paste." Salomon and his family had received 1.3 million shares of Squibb stock (adjusted for a split) in the merger, but they sold half within a year and a bit more in later years. They currently hold 570,000 shares with a recent market value of nearly $20 million. Now 70, Salomon is a noted philanthropist, having made seven-figure gifts to such institutions as Brown University, where he chairs the board of trustees, and the New York Public Library, which he served as chairman for four years.

No comparable test could be made in the two cases where companies were bought with cash—Northwest Industries' acquisition of Buckingham, the importer of Cutty Sark Scotch, and General Host's acquisition of Cudahy, primarily a meatpacker. In theory, a logical approach would have been to assume that the acquirers had used the cash instead to buy back their own stock in 1971—as many shares as they could at the price then prevailing. This procedure would show whether the acquirer could have done better by betting on itself rather than on an acquisition. The hypothetical earnings per share for 1981 would be calculated by deducting the number of repurchased shares from the acquiring company's current capitalization and by also deducting the acquired company's 1981 earnings.

But the cash deals in our study presented special complications that made such a comparison meaningless. In the case of General Host-Cudahy, the amount of cash used—$80 million—would have been enough to buy back *all* of General Host's outstanding shares at their 1971 high price, with some $30 million left over.

In the Northwest-Buckingham deal, Northwest had to borrow the $120 million it used to buy Buckingham, obtaining the money largely because the acquisition made good collateral. But Northwest almost certainly couldn't have borrowed that much money in 1971 to buy its own shares. At the stock's high for the year, the $120 million would have consumed nearly half the company's capitalization, and any potential lender would no doubt have considered such a shrinkage preposterous.

Nevertheless, both General Host and Northwest would have been much better off if they had bought feasible quantities of their own stocks rather than making the acquisitions. The stocks of both were selling reasonably in relation to book value. The price paid for Cudahy seemed reasonable also—41% over book value—but Buckingham sold high, at more than seven times book. Neither company, in any case, went on to produce strong profits. By 1981 Cudahy's meatpacking operation had become a chronic money loser, while Buckingham's profits, hit by declining demand for its main product, Scotch whisky, had dwindled to less than half their 1970 level. Northwest's other businesses, meanwhile—the crowd it would have been betting on had it bought in its own stock—did well, experiencing vigorous growth in profits during the 1971-81 decade. At decade's end, the company's president, Ben Heineman, was so enthusiastic about Northwest's business that he was actually doing what we would theoretically have proposed in 1971: buying in large quantities of his own stock.

In 1980 General Host took a $28.5-million pretax write-off on Cudahy and it has since sold most of Cudahy's assets. Early this year Northwest sold its beverage division, including Buckingham, to Beatrice Foods. Two other acquired companies in our study may soon be divorced. Coronet Industries, a carpet manufacturer bought by RCA, is on the block, and Wall Street analysts say that Nabisco Brands is considering the sale of J.B. Williams, a maker of toiletries.

A snapshot instead of a reel

The method we used to analyze the eight acquisitions made with stock has some shortcomings. One is that we had to estimate 1981 earnings of the acquired companies. None of the acquiring companies publish—nor would they divulge to FORTUNE—the net incomes of their acquisitions. But annual reports provide a lot of revealing information about "segment" profits these days, and we also discussed our profit estimates with security analysts. We consider the estimates reasonable.

Another shortcoming is that our study takes a snapshot of just one year—1981. The earnings of a given acquisition could have been better in previous years, or worse. Using a one-year snapshot, furthermore, means that any capital flowing in and out of the acquisition over the years is ignored. An acquired company that has drawn on its parent for capital has leeched the parent's other businesses; a situation like that would make the 1981 "hypotheti-

cal case"—with the acquired company deleted—look weaker than it is, since the businesses producing the hypothetical earnings would have been deprived of capital and earnings that they would have had if the acquisition had not been made. On the other hand, the hypothetical case would look stronger than it is if capital had been taken from the acquisition and allocated to the parent's other operations.

The statistical shortcomings in our exercise do not destroy its basic point. In 1971 our ten acquirers had the option of sticking with their existing businesses or of using their stock as currency to make an acquisition that would widen their range. They chose, so to speak, to enlarge their playing field. The wisdom of that decision may be judged today by how much stock they gave up and how well earnings proceeded to do, both in the acquired company and in the acquirer's other businesses.

Some appalling returns

As the table on pages 84 and 85 illustrates, the verdict, going by earnings-per-share comparisons, is mixed. Five of the acquiring companies—Squibb, RCA, ITT, American Cyanamid, and Johns-Manville—evidently would have fared worse in 1981 if they had not made the mergers. Three others—Heublein, Schering, and Nabisco—would have fared better, and to this group should be added Northwest Industries and General Host, even though the toll of their mergers could not be measured exactly. The tally, then, is five in favor of the acquisitions, five against.

The case for the acquisitions grows considerably weaker if we also look at return on investment, illuminated on the table by the relationship between the price paid for the acquisition and its estimated 1981 earnings. Most of the acquisitions produced appallingly low returns during 1981. In three cases—Nabisco-J.B. Williams, RCA-Coronet, and Northwest-Buckingham—the estimated return on investment was less than 5%. In three more cases—Squibb-Lanvin, Schering-Plough, and Heublein-Kentucky Fried Chicken—the return was between 5% and 10%. The only deals in which the return exceeded 10% were ITT-O.M. Scott, American Cyanamid-Shulton, and Johns-Manville-Holophane. And none of them matched the 13.8% median return for all the companies in this year's FORTUNE 500.

If we go beyond the statistics and consider the paths of some of these corporate marriages, the case for conglomeration looks even bleaker. For example, a particularly long and painful period of adjustment followed Heublein's marriage to Kentucky Fried Chicken, which was a high-flyer in the fast-food business during the Sixties. But it was already in a tailspin by the time Heublein, a leading distiller, decided to acquire it. Cocky with success, KFC's old management, under the leadership of John Y. Brown Jr., now the governor of Kentucky, had diversified beyond chicken into roast-beef restaurants, fish-and-chips restaurants, and motor hotels. These ventures never jelled, and KFC suffered a $2.5-million loss in the six months that ended in March 1971.

Why, then, did Heublein go ahead with the merger that July, shelling out $237 million in common stock for KFC? "Our objective," recalls Stuart D. Watson, then president and now chairman of Heublein, "was to develop a better balance between our alcoholic-beverage business and our food business, which was then small." Watson acknowledges that he received warnings from friends on the board of General Foods, which had previously bought another fast-food chain, Burger Chef. They said that fast food had little in common with shelf goods and that it required special, scarce management skills. After the merger, Heublein took a $32.5-million pretax write-off to complete the divestiture of KFC's non-chicken wings—but the trouble was only beginning.

KFC had grown so rapidly that it had failed to maintain adequate control over its 3,000 franchised outlets, which greatly outnumbered company-owned restaurants. Anarchy prevailed. The franchised operators were notoriously rude to customers, their restaurants were messy, and their cooking was careless—to put it charitably. By the time of the merger, many chicken lovers had switched allegiance away from Kentucky Fried and were flocking to a number of newly hatched competitors. Things got so bad that Kentucky Fried was even denounced by its own trademark—a humiliation surely unique in the annals of American business. The late Colonel Harland Sanders, who was paid $200,000 a year to serve as KFC's "goodwill ambassador," couldn't conceal his displeasure with the restaurants he visited, and he told anyone who would listen that he found the food inedible.

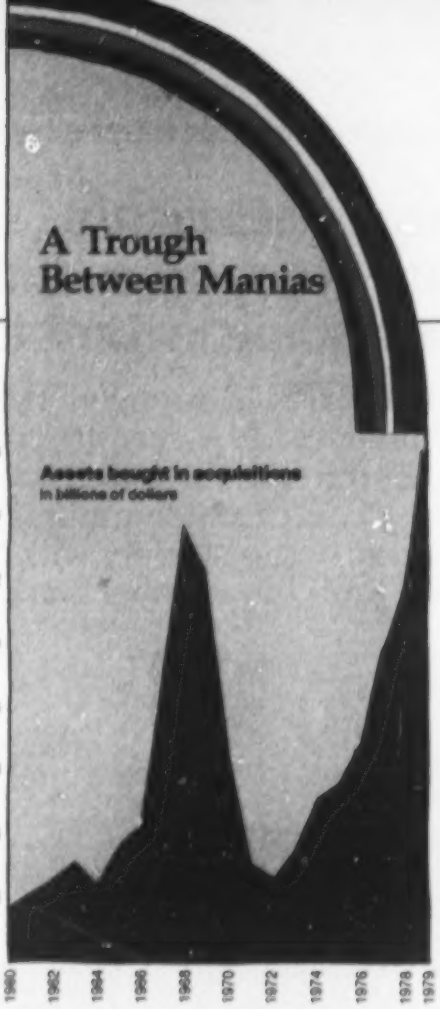
Heublein made some blunders of its own after taking over Kentucky Fried. It bought a company that raised and processed chickens. The operation seesawed between profit and loss and was sold within five years. The new management even rediversified, adding spareribs to the standard menu and buying a chain of Mexican restaurants.

Heublein finally began turning KFC around early in 1978, after firing some of the top managers it had installed in 1971. A new president of KFC organized a compulsory training program for restaurant employees. He redesigned the restaurants and suspended the latest diversification, once again focusing full attention on chicken. These tactics worked. KFC began to make sharp gains in earnings while other fast-food operators remained stranded on a plateau. By 1981 KFC was earning an estimated $22-million profit on sales of more than $600 million—not good considering Heublein's investment in the business, but clearly an improvement.

A tacky performance at Ritz

While Kentucky Fried Chicken was already in trouble when it was acquired, Lanvin-Charles of the Ritz was in good shape until it merged with Squibb Corp. Squibb, a drug manufacturer and food processor, exchanged $206 million in stock for Lanvin, a maker of cosmetics and fragrances. Lanvin's operating profits, $14.4 million in 1970, bottomed out at around $8 million in 1975. Richard M. Furlaud, Squibb's chief executive both now

A Trough Between Manias



Mergers were few in 1971, the base year of FORTUNE's study. The mania of the 1960s had passed, while today's was still far off. The FTC statistics here include only acquisitions of industrial companies with assets of at least $10 million. W.T. Grimm data for 1980 and 1981 show mergers continuing to increase.

and at the time of the merger, is willing to accept much of the blame. "We made mistakes in terms of people and marketing," he admits. "We didn't understand the business."

After completing the merger, Squibb brought in a textile executive to serve as head of the Lanvin subsidiary and he hired other outsiders. Lanvin executives who could have provided valuable know-how were ousted. The new management's inexperience showed itself in embarrassing ways. For example, it nearly destroyed the highly successful Jean Naté line of toiletries by offering it to retailers at a discount in hopes of sharply boosting sales. Management evidently didn't realize that in such goods a discount is normally a tip-off that the product has flopped. Many buyers shrank from Jean Naté, and it was several years before volume was restored.

Lanvin-Charles of the Ritz began to prosper once again in 1976 under a new boss. He brought in a battalion of creative people who knew the industry well, and they bolstered the company. Lanvin also introduced two fragrances abroad, Opium and Enjoli, which it built into dazzling successes.

Squibb, however, felt confined because it held only the U.S. and Canadian rights to the Lanvin trademark, while the overseas rights belonged to the Lanvin family, which is based in Paris. So Squibb sold its rights to the family, realizing a capital gain of $6 million. Charles of the Ritz, which Squibb retained, produced sales of $325 million, operating profits of $28 million, and estimated net income of $15 million during 1981.

Among the deals we considered, only General Host's acquisition of Cudahy can fairly be described as an unmitigated disaster. General Host, which made baked goods and ran a chain of food stores, had been eager to get into the meatpacking business. Thwarted in an attempt to take over Armour—Greyhound Corp. won *that* dubious prize—General Host settled instead for Cudahy, which earned a profit of $6.1 million during its 1971 fiscal year. In a public statement, General Host's management congratulated itself on acquiring a business with "proven earnings."

The timing couldn't have been worse. The meatpacking industry was on the eve of revolution, and old-fashioned packers such as Cudahy, Armour, Swift, and Wilson were too clumsy to adapt. Newer, more aggressive, more flexible packers, like Iowa Beef Processors, built automated plants that added greatly to efficiency. The newcomers steadily drained business away from the older packers.

The turmoil was accentuated by a livestock market suddenly gone haywire. Violent fluctuations buffeted the production and prices of hogs and cattle during the Seventies and into the Eighties. The meat business of Cudahy—that company with "proven earnings"—lost money in 1975 and 1976, was profitable in the next three years, then began losing again. The bulk of its operations was sold last August for $28 million. Harris J. Ashton, General Host's chairman and chief executive for the past 12 years, expresses palpable relief at his escape. "I don't need those headaches anymore," he exclaims.

The acquirers were down the list

Our study of conglomerate mergers provides some useful lessons. For one thing, it strongly supports the notion that investing in unfamiliar businesses is unduly perilous—just as the critics maintain. Most of the acquirers evidently were lured into buying unstable companies, or into committing foolish mistakes that harmed stable ones. Only two mergers in our study—ITT-Scott and Johns Manville-Holophane—remained trouble-free from beginning to end of the decade.

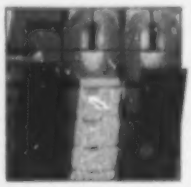
Another important point concerns the acquiring companies. Most turned out to be bad investments over the past decade. Only one, Northwest, ranked among the FORTUNE 500's top 50 companies in total return to investors for the ten-year period ending with 1981—its standing was 38th—and no other acquirer even made the upper half of the 500. Five of the acquirers—Heublein, RCA, ITT, Schering-Plough, and Johns-Manville (now renamed Manville Corp.)—actually showed a negative return. Anyone who bought stock in these companies at the end of 1971, reinvested dividends, and held on would have lost money. (General Host does not appear on the 500 list this year, so it doesn't figure in the rankings.)

These performances suggest some intriguing conclusions. It may be that the managements of the acquiring companies were aware that they were facing some lean years, and that they plunged into large mergers in the hope that this would improve their financial results. Another possible conclusion is more pointed: maybe stock-market investors should beware of companies that make large conglomerate mergers. ■

MONEYMAKERS

Buried in huge enterprises, thes

The Fortune 500's



by JOHN J. CURRAN

The FORTUNE 500 chronicles the colossal; sales and profits of the list's leading corporations are in the multiple billions. Easily overlooked in this corporate accounting is the business gem—the small product line that, through some stroke of fate or genius, showers profits on its owner out of all proportion to its size.

Companies aren't often called upon to reveal these tiny jewels. Reports to the SEC can hide them in a welter of other numbers. Financial analysts are more concerned with the prime movers, the big divisions, than they are with splinters from the giant oaks. In addition managements may have reason not to brag about these goodies: Spectacular returns, when revealed, tend to get noticed by potential competitors and complaining customers. At the Justice Department, conspicuous profits can provide a sign that competition isn't what it ought to be.

Where the calories count

This article identifies ten jewels buried in ten FORTUNE 500 companies. None contributes more than 10% of the corporation's sales; one is estimated to kick in less than .5%. But all provide outsize profits and earn remarkable returns on assets (see the table on page 102).

Gems can turn up in unlikely settings. H.J. Heinz subsists on such staples as pork and beans, but some of its plumpest profits have been coming from a business that helps the overindulgent take off weight. When Heinz acquired the Weight Watchers diet-food business in 1978, it also took title to an operation that runs **diet classes**. Since the classes are given mainly by franchisees under the Weight Watchers name, Heinz hardly works up a sweat. The franchisees pick up their own expenses except for marketing, and feed 10% of their take back to the parent. Heinz counts the calories on the bottom line: return on assets runs better than 30%.

A proprietary license can be a license to mint money. Five years ago Becton Dickinson bought rights to **the Levine shunt**, a surgical implant named after the doctor who developed it. A pressure-activated valve, it is implanted in cirrhosis-of-the-liver patients to rid them of life-threatening fluids that collect in the abdominal cavity. The valve isn't cheap. Essentially a piece of silicone rubber, it sells for just under $400, but relieves patients of costly hospital stays. Becton Dickinson is loath to discuss markups for fear of incurring the wrath of cost-containment crusaders. In the executive dining room, however, it's acknowledged that the product shunts plenty of cash into corporate coffers.

A licensee is best off cutting a deal before the licenser knows he's got a winner and jacks up the fee. General Mills picked up exclusive rights to **Star Wars toys** before the first theater ticket had been sold and has been milling big profits ever since. The terms of the deal were generous largely because marketing maxims suggested that kids wouldn't identify with characters on the big screen the way they do with TV stars. Within a year of the film's release, General Mills was riding the hottest thing to hit the children's toy market since Barbie dolls.

Smart planning has undoubtedly produced some precious stones, but it's of-

Dart & Kraft's Tupperware

Plastic Tupperware containers are peddled to housewives through the party plan. But the real celebration begins once the parties are over and Dart & Kraft gets to count the take.

relatively small businesses yield enormous profits.

Hidden Gems

ten better to be lucky. Continental Group, the forest-products and packaging giant, found surprising growth in a business not known for liveliness—**life insurance**. A few years back Continental was searching for a cheap way to smooth out cyclical earnings; insurance can provide opportunities to take capital gains when needed. With price in mind, an investment banker suggested the Richmond Corp., a sickly operation that had just taken a bath in the casualty business. S. Bruce Smart Jr., 59, Continental's chief executive, wasn't looking to Richmond for salvation. "That business," he says, "was no Sir Galahad."

What Smart and his colleagues didn't know was that the creative minds at Life of Virginia, Richmond's principal asset, were about to start tinkering with a product that would revolutionize life insurance. Within a few years Life of Virginia became the first major life company to plunge into the market with a "universal life" policy. Demand for the product, sort of a hybrid of term insurance and a money-market fund, took off almost immediately. Last year Life of Virginia's policy, called the Challenger, kicked the company's insurance sales growth from 5% a year to 23%.

The 350-ton mistake

Ethyl Corp. had an even bigger dose of good fortune in its acquisition of **Elk Horn Coal**. Though companies have bought coal reserves recently for astronomical prices, Ethyl bought Elk Horn three months before the Arab oil embargo ended and long before anyone realized what the full impact of the oil-price increases would be. Nor was that the end of Ethyl's luck. Engineers sent to survey Elk Horn's properties in Kentucky after the deal was made came back with startling news. Though Elk Horn had claimed reserves of some 250 million tons, the actual number was closer to 600 million. This double scoop of happiness is now worth close to six times the original price. Says John Gottwald, who is the son of Ethyl's chairman and presides over the family jewel, "It was one damned fine investment."

Glittering businesses can bring glittering prices on the acquisition block, so payoffs can be better from pearls that are cultured in-house. United Brands had a diamond in the rough sitting in the Central American jungle for 70 years before the company discerned its value. Back at the turn of the century United Fruit, as it was then called, built a telegraph system in Panama and Honduras. The **Tropical Radio Telegraph** subsidiary carried some outside traffic but was used mainly to find out when the company's banana crop was ready for shipment. The system never made much money, and in the early Seventies United Brands tried unsuccessfully to unload it.

Stuck with the business, management decided to turn it loose against the major telecommunications carriers. Within a few years the subsidiary, its name modernized to TRT Telecommunications, had received FCC approval to serve Europe and the Far East. Up against RCA, ITT, and their ilk, TRT slashed telex rates, some by more than 20%, and dispatched "Battlegrams" to prospective clients alerting them to the price cuts. The bellicosity paid off. In the last couple of years, TRT has won over such major clients as Merrill Lynch and Coca-Cola and has claimed 11% of the U.S.-based international telex business.

Mead Corp. set its sights on a tiny niche in the computer-software market and was surprised by what it came up with. **Lexis**, a random-access data base for the legal profession, offers a vast store of legal information that can be summoned with the touch of a few buttons. In a matter of seconds, lawyers can obtain an obscure legal reference that used to require hours of tedious bookworming. If an attorney finds himself confronting an unfamiliar judge, Lexis can tell him how that judge has ruled on particular kinds of cases in the past.

Though the product now earns Mead's highest return on sales, the road to Golconda wasn't without potholes. Based in Dayton, the company originally planned to restrict Lexis to its home state and figured that producing the system would require little more than throwing Ohio's law books on a keypuncher's desk. But the idea soon went nationwide, and learning how to call all that information onto a computer screen turned out to be complicated. "We figured we could do it for half a million," recalls James McSwiney, 66, Mead's chairman, "and we did—$27 million later."

continued

United Brands' TRT Telecommunications

Back at the turn of the century, United Brands set up a small telegraph network to keep in touch with its foreign plantations. Seventy years later it became the key to big profits.

A Sampling from the Jewel Box

Company	FORTUNE 500 rank	Business gem	Share of revenues	Share of operating profit	Return on assets
GENERAL ELECTRIC	11	*Quartz products*	under 1%*	under 1%*	over 30%*
DART & KRAFT	29	*Tupperware*	8.5%*	28%*	60%*
CONTINENTAL GROUP	74	*Life insurance*	5%	13%	2.4%
GENERAL MILLS	80	*Star Wars toys*	3%*	6%*	40%*
UNITED BRANDS	95	*Telecommunications*	2%	13%	21%
H.J. HEINZ	111	*Diet classes*	1.5%	over 2%	over 30%
MEAD	146	*Legal-data retrieval*	2%*	7%*	30%*
ETHYL	214	*Coal*	1%	5.7%	52%
BECTON DICKINSON	300	*Levine shunt*	under .5%*	2%*	over 30%*
DOVER	311	*Sucker rods*	10%*	20%*	over 80%*

*FORTUNE estimate.

Gems don't have to be big to be beautiful. All these businesses produce far fatter slices of their owners' profits than of sales. General Electric is so large that its quartz business accounts for less than 1% of sales and earnings, but the operation sparkles in return on assets. While the return earned by Continental Group's life-insurance subsidiary looks small, it's terrific by industry standards. Most of Ethyl Corp.'s jewel still lies underground appreciating. Since the vast coal reserves are carried on Ethyl's books at a fraction of market value, the company needs to sell only a sliver of its holdings annually to send the return on assets sky high.

That wasn't the company's only miscalculation. The steep fees Mead planned to charge suggested that only the biggest law firms could afford the service. But fortunately for Mead, lawyers aren't prone to stand idly by while their competitors get an edge. Within a few years Mead had signed up not only the top 200 law firms but over 1,000 smaller ones as well. Some use 100 or more terminals so each associate can have one. Over 100 corporations have also picked up the system and, to cut hourly fees, some insist that their outside counsel use it. Mead will soon introduce a portable terminal that can be coupled to a telephone outside a courtroom. The company's jump on the market, combined with the cost of developing the system, has so far discouraged competitors from muscling in. Last year Lexis's revenues topped $40 million, with operating profits estimated at about $8 million.

Dover Corp., one of the FORTUNE 500's more taciturn members, has taken in a bellyful of earnings by going after markets too small to arouse the appetites of competitors. Its products range from nozzles for gas-station pumps to clip closures, the twisted wires used to seal meat packages. The strategy has produced plenty of winners. The company, organized in the mid-Fifties with a big helping of old English money, leads the market in 20 of its 25 product lines.

Dover's sweetest victory belongs to its Tulsa-based Norris division, a producer of sundry valves and pumps for oil producers. Norris's hottest item is **the sucker rod**. These forged-steel poles are produced in 25-foot lengths and then coupled together to extend up to 12,000 feet. They are plunged deep into the bowels of an oil well to work a pump at the bottom.

Sucker rods were once the province of the major steel producers, but the skinny poles didn't generate enough revenue to draw much interest on the part of the big mills. Unbeguiled by sheer volume, Norris moved in, took better than half the market, and set a new standard for sucker-rod quality. Quality is no small matter in this business, since a broken rod 5,000 feet down can stall production for days. Although the price per foot is low, usually under $2, the rods last year provided an estimated 10% of Dover's $1.03 billion in sales and 20% of its $188 million in operating earnings.

Norris hasn't felt the drop in oil prices yet and isn't much worried. Eyes in Tulsa are turned toward the Middle East. Reservoir pressures there are high enough that the oil doesn't need pumping. But Edwin L. Bechtold, president of Norris, exudes the quiet confidence of an undertaker: "Sooner or later they'll come around."

Profits from purity

Some companies are of such size that money machines generating $10 million a year or more in sales are simply swamped by the larger divisions. General Electric has been producing **quartz products** for nearly 40 years. Quartz is an unexciting but necessary component in high-temperature lamps like those used in street-

continued

lights. While GE sold some quartz products to others, that was secondary to their use in the lighting business—until silicon semiconductor chips came along.

Quartz, it turns out, is one of the few materials capable of withstanding the intense heat required to produce single-crystal silicon. One of GE's hottest items is a quartz crucible that cradles molten silicon throughout the crystal-growing process, which lasts about a day at temperatures exceeding 1,400° C. GE has mastered the technology to turn out crucibles of extremely high purity, needed to prevent contamination of the silicon. Motorola alone buys over $1 million in quartz products annually from GE.

The refractive qualities of quartz make it important to another new technology: it's the perfect coating for hair-thin optical fibers now being used to transmit telephone signals. Narrow quartz tubes are lined with glass and then melted, at 1,800° to 1,900° C., to form a solid rod from which the optical strands are drawn. Demand from chipmakers softened last year, but this new application and increased foreign business kept sales growth robust. Overall sales have doubled since 1978 and profits have more than tripled.

When a product has no unique qualities, creative marketing may be called for. Dart & Kraft's **Tupperware** containers boast no great distinction other than the capacity to burp out air and preserve the freshness of perishable foods. The magic of this business is in the method. The products are sold through the party plan, a system not unique to the Tupperware crowd but one they certainly have mastered. The company recruits housewives, thousands of them, to hawk its wares at orchestrated neighborhood parties. That may sound a bit hokey, but the estimated 30% operating margins sure aren't.

How to give a party

Tupperware is one of the few American consumer products to have crashed into Japan in a big way. "Our first few parties were real flops," recalls an executive familiar with the campaign to crack that market. Japanese housewives were too reserved to throng to Tupperware parties. The secret, executives soon discovered, was to combine Tupperware sales with flower-arrangement classes and tea ceremonies, near obsessions among Japanese women. Party attendance quickly took off. Sales from Japan now account for 10% of Tupperware's total, with seaweed containers and sushi lunch pails going like ricecakes. Tupperware isn't immune to recessions—sales per party decline—but the number of parties held increases as more women take up the cause. During the first two weeks of this year the worldwide network of women threw better than one million parties, a veritable Tupperware orgy.

FORTUNE 500 companies undoubtedly harbor plenty of other hidden gems. Gulf & Western, for example, appears to have found heavenly returns by providing eternal resting space for the departed. G&W fell into the casket business when it acquired Simmons, the mattress make. which ran the operation on the side. Customers must have been satisfied: Simmons was No. 2 in the casket industry.

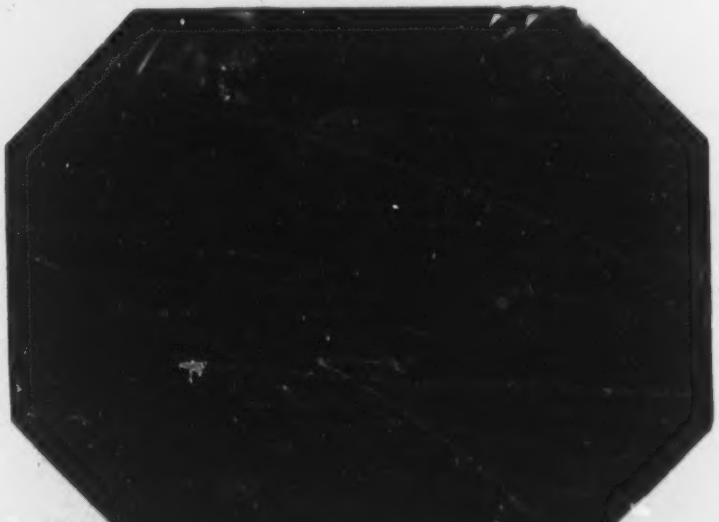
Shortly after taking over Simmons, G&W bought the third-largest casket maker in 1980. G&W has been keeping mum about casket profits, but Pamela Singleton, a Merrill Lynch analyst who follows the industry, notes that operating margins can easily exceed 20% in good years. When a star shines brightly enough, it's hard to keep people from noticing. In this case, the noticer was the Federal Trade Commission's antitrust squad, which is challenging the latest acquisition. ■

Dover Corp.'s Sucker Rods

Sucker rods, used to pump oil, didn't really get hot until the energy hunt became a national pastime. Since then, Dover has been forging returns that would raise even an oilman's eyebrows.

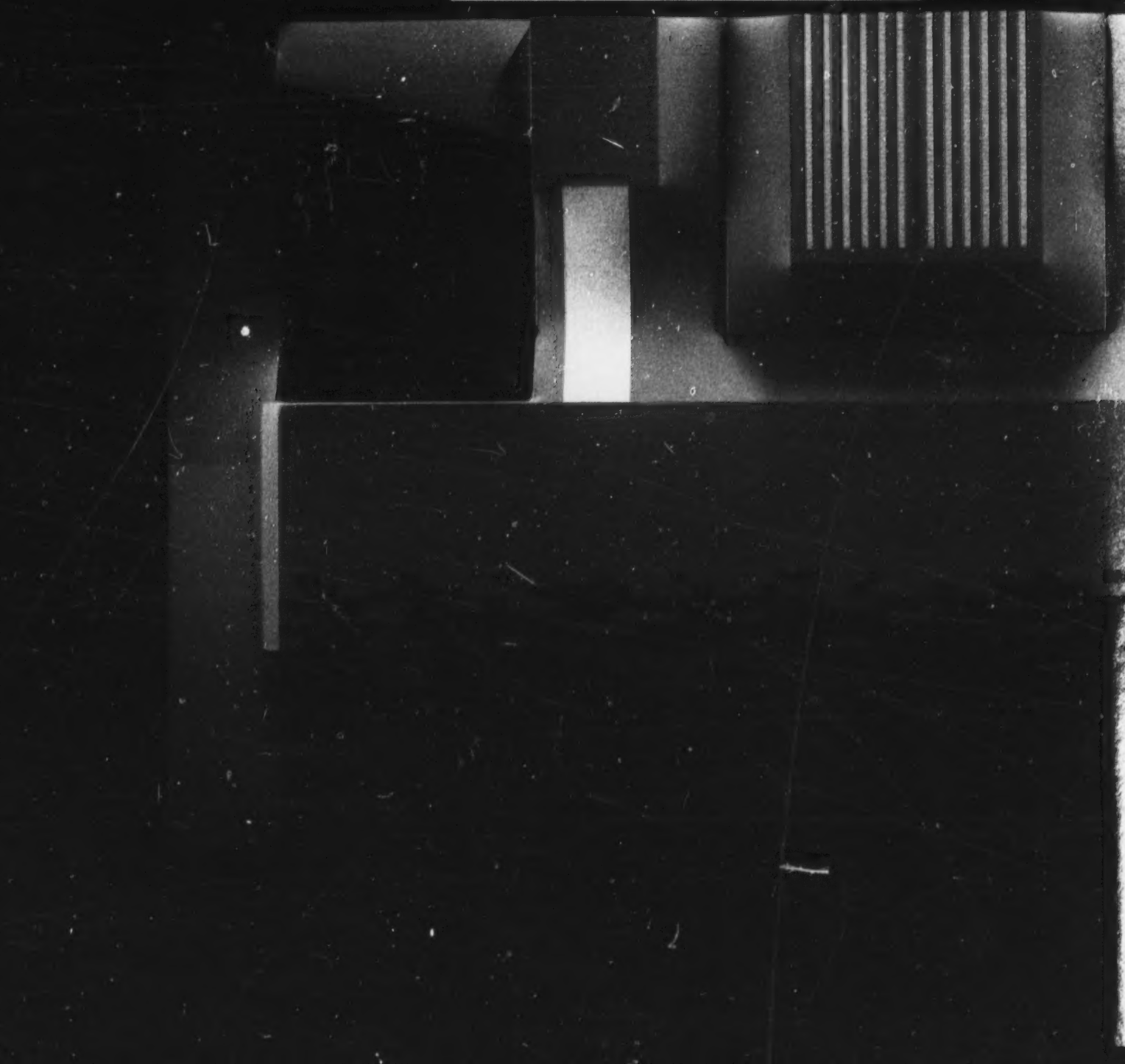
General Electric's Quartz Products

High technology is casting a glow on GE's 38-year-old quartz business. The crucibles are used to grow silicon crystals for semiconductors, the tubes to make fiber-optic cable.



INDUSTRIAL AND FARM EQUIPMENT

	1981	1980
Number of companies on the 500	44	43
Sales ($ millions)	76,740	71,825
Net income ($ millions)	4,351	3,147
Median return on equity (%)	13.9	13.3
Number of employees	989,294	1,016,711
Median sales per employee ($)	76,804	69,779
Median total return to investors (%)	-10.29	23.95



BOLD EVOCATIONS OF BIG INDUSTRIES

Even in turbulent times, some things about the industries of the FORTUNE 500 stay fairly constant. Among the seven largest, portrayed in this portfolio, only one has changed markedly over the past year: food lost almost $5 billion in sales when Occidental Petroleum acquired Iowa Beef Processors.

Equally enduring are the images the industries evoke, from the cleated tires of an earthmover to the rigid geometry of a circuit board. FORTUNE commissioned these works from Philadelphia artist Steve Tarantal, who sawed shapes out of masonite and plywood, stretched canvas over them, then splashed jutting screws and pipes, pulleys and flasks with bold colors he calls "joyous and celebrational." Tarantal harvested most of his impressions from workaday things—the back of a radio, cans stacked on a shelf—but for "chemicals" he imagined an explosion scattering molecules.

Paintings by Steve Tarantal

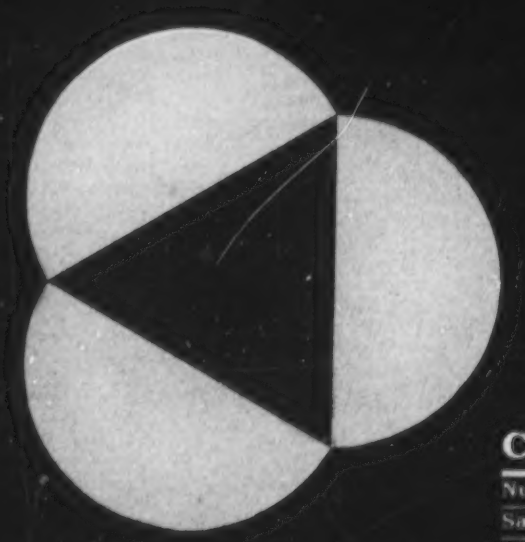
Photographed by Seymour Mednick

PETROLEUM REFINING

	1981	1980
Number of companies on the 500	41	41
Sales ($ millions)	561,097	510,901
Net income ($ millions)	27,435	30,001
Median return on equity (%)	16.4	19.4
Number of employees	1,255,613	1,203,477
Median sales per employee ($)	512,868	441,544
Median total return to investors (%)	23.17	53.09

MOTOR VEHICLES

	1981	1980
Number of companies on the 500	16	19
Sales ($ millions)	149,115	138,544
Net income ($ millions)	459	3,134
Median return on equity (%)	7.6	8.1
Number of employees	1,706,186	1,776,026
Median sales per employee ($)	78,790	68,819
Median total return to investors (%)	4.45	3.39



CHEMICALS

	1981	1980
Number of companies on the 500	43	40
Sales ($ millions)	118,816	95,665
Net income ($ millions)	6,951	5,153
Median return on equity (%)	13.5	13.9
Number of employees	1,028,350	930,939
Median sales per employee ($)	119,395	100,456
Median total return to investors (%)	-.95	16.65

METAL MANUFACTURING

	1981	1980
Number of companies on the 500	38	38
Sales ($ millions)	94,744	90,373
Net income ($ millions)	4,413	4,471
Median return on equity (%)	12.4	12.9
Number of employees	857,447	970,427
Median sales per employee ($)	107,165	96,031
Median total return to investors (%)	6.08	20.69

FOOD

	1981	1980
Number of companies on the 500	50	54
Sales ($ millions)	123,873	130,068
Net income ($ millions)	4,182	4,419
Median return on equity (%)	14.4	14.5
Number of employees	1,160,014	1,337,986
Median sales per employee ($)	114,979	103,004
Median total return to investors (%)	18.15	9.81

ELECTRONICS, APPLIANCES

	1981	1980
Number of companies on the 500	38	37
Sales ($ millions)	135,770	125,387
Net income ($ millions)	6,410	6,540
Median return on equity (%)	14.3	16.2
Number of employees	2,185,781	2,189,351
Median sales per employee ($)	60,385	53,981
Median total return to investors (%)	39	36.07

AUTOMATION

What's Detaining the Office of the Future

by BRO UTTAL

Since the middle 1970s "the office of the future" has been perceived as a sort of promised land. Designers dream of applying computer power to office work by putting a keyboard and a video screen on almost everybody's desk and connecting these "work stations" into networks. The systems will enable people to send and receive information in written and graphic form, to edit material punched up on their screens, and to draw data from files both inside and outside their offices. The point is to simplify the transfer and analysis of information, which are the major elements of office work.

In contemplating this office-automation market, makers of computer and telecommunications equipment all but drool. According to one estimate, U.S. spending for advanced office gear should swell from nearly $3 billion last year to more than $12 billion in 1986 (see chart, page 184); the non-U.S. total could be half that large. Dozens of corporations are vying for pieces of the action. AT&T, IBM, and Xerox have declared the market a key to their futures. Late last year the top three minicomputer companies—Digital Equipment, Hewlett-Packard, and Data General—launched new office-automation systems within 30 days of one another. "So many companies have thrown their hats into the ring," one Hewlett-Packard manager jokes, "that the hats are landing on top of each other."

Research associate: Peter D. Petre

The congestion is also caused by a major problem in the market, which is that few customers have yet ventured to buy the dream. A small cadre of leading-edge users does exist: Atlantic Richfield, Aetna, Avon Products, some branches of government, such as the Department of Transportation. Then there is the rest of the customer world, most of it hanging on the trailing edge. According to Wang Laboratories, still another important manufacturer chasing the business, only 60 or so of the largest industrial corporations have acquired as many as 100 office work stations. A much smaller number have linked them into pervasive networks. Demand has simply developed more slowly than anyone thought it would a few years ago.

The result is a market that has the vendors behaving like schizophrenics. To keep up with the leading-edge users and to get set for the day when the bulk of customers finally convert to advanced equipment, IBM, Wang, and others have spent lavishly on developing and promoting exotic systems. But the current market for such devices is so narrow that profits won't show up for years. "We 'gee-whiz' the customer with the office of the future," says Edward P. Gistaro, president of Datapoint, a Texas manufacturer, "but he buys one of our plain minicomputers. That's the way it is for all the vendors."

The vendors, though, are far from giving up. They've laid technological siege to customers and last year buttressed their sales efforts with over $33 million in splashy advertising for components of the electronic office. The customers are showing signs of exhaustion. Jim Candler, staff consultant for office automation at Federal Express, yearns for "a breathing spell." Otherwise, he says, "the users will burn out from an overdose of technology and unfulfilled expectations." One leading-edge user speaks for most customers when he protests: "We don't need any more technology; we need to find out how to use what we've got."

Sinking under the overhead

The powerful basic reason for automating offices is that white-collar salaries are a huge and intractable cost of doing business. In 1980 60% of the $1.3 trillion paid out for wages, salaries, and benefits in the U.S. went to office workers. The productivity of white-collar workers is hard to measure, but it probably hasn't risen much. American business often seems to be sinking under the burden of administrative overhead.

Meanwhile the prices of electronics have

Most chief executives aren't comfortable at keyboards, one reason office automation hasn't swept the corporate world. But Ben W. Heineman (right), president of Northwest Industries, uses a $4-million computer system to analyze his operations. It makes him "20 times more efficient," he says.

Michael Weinstein

Jerry Sarapochiello

This buffet of office technology includes, at upper right, a red IBM electronic typewriter; next, proceeding clockwise, Wang's Wangwriter; AT&T's antenna-like microphone for telephone conferences; a Rolm computerized switchboard; Xerox's video screen for controlling electronic files and, in back of the screen, a Xerox Star work station; an NBI controller used for linking word processors. The aluminum casting in the center is part of an IBM laser printer.

been falling. Computer memory has become cheaper at a compound annual rate of 42% over the last five years, and the price of the logic chips that give computers their intelligence has dropped about 28% a year. So, say the vendors, the way for business to rescue itself is to substitute electronics for labor. Vendors have pounded a theme: offices are unproductive because business has backed up each office worker with only about $2,500 in capital investment vs. around ten times that amount for each factory worker. Therefore, claim the vendors, business should make massive new investments in automation.

That argument has major flaws, beginning with the numbers. Michael D. Zisman, president of Integrated Technologies, an office-systems consulting firm, is often cited as the source of the investment figure for office workers, which he used in a 1978 article for the *Sloan Management Review*, published by MIT's business school. Zisman now says, "I relied on that number because it was the received wisdom, but I've since found out it's plain folklore. Investment looks low because companies expense their office-related costs instead of capitalizing them. If you capitalize actual expense streams for the office, you'll find companies have already invested $15,000 to $20,000 per office worker, which is pretty damned high."

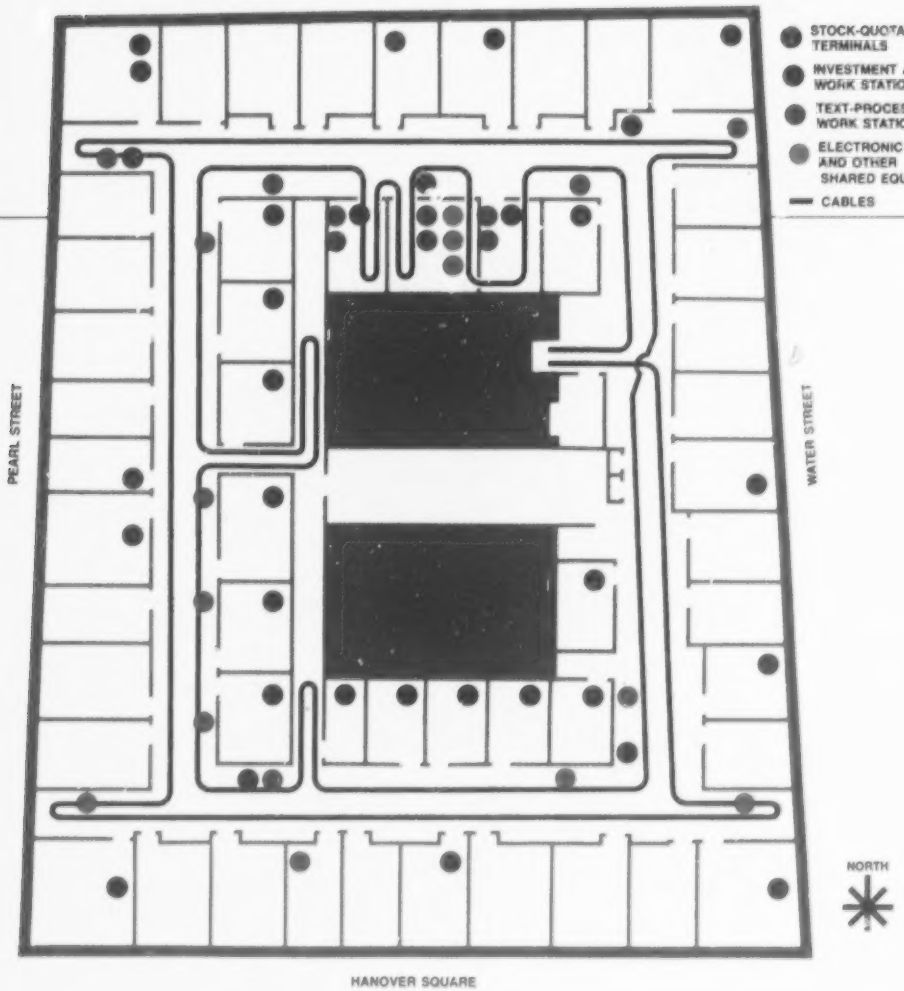
Moreover, the substitution of machine power for human labor does not increase productivity in an office as straightforwardly as it does in a factory. Paul A. Strassmann, a Xerox vice president who has spent the last 25 years helping to automate offices, notes: "We're still deeply rooted in industrial-engineering concepts of efficiency, but office technology doesn't achieve its most powerful effects primarily by mechanizing what people are doing already. Instead, it simplifies tasks and eliminates unnecessary job steps." Using a powerful work station, for example, a manager can draft a report, create and insert charts and tables, revise, and print the text without leaving his desk or waiting for work to come back from other people, such as secretaries or staff analysts, who once would have been involved.

In other words, the technology works best when it reorganizes the ways in which work is done. The creation of a sophisticated electronic office therefore calls for lots of planning, training, and continuing supervision. Strassmann estimates these activities cost as much as the technology itself. Yet customers often ignore such costs when calculating the financial burden of automating.

In figuring the benefits, office managers tend in turn to focus too much on individual output. Instead, since office automation changes patterns of working,

continued

THE VIEW ON KIDDER PEABODY'S 16th FLOOR



The New York brokerage firm Kidder Peabody & Co. is spending big money—FORTUNE estimates more than $1 million—automating its research department, part of which is outfitted as this floor plan indicates. The red-dot work stations—Xerox personal computers—include a few used by analysts in outside offices and a larger number for analysts' assistants in inside offices. Wiring is in place to allow all analysts to hook up if the mood strikes them. The green-dot work stations are Xerox word processors and Stars.

customers should be examining their organization's overall productivity. Strassmann is working with two consulting firms, the Diebold Group and the Strategic Planning Institute, to find out how much office-technology investments add to the total value—that is, profits—that organizations produce. The lack of convincing studies on this subject surely has heightened customers' reluctance to plow ahead with automation.

What IBM thought up

Because adapting highly structured electronic systems to the unstructured flow of office work is a tall order, it's the more routine tasks that have been automated so far. The concept that's gone furthest is word processing, a term IBM thought up in 1964 to describe electronic ways of handling a standard set of office activities—composing, revising, printing, and filing letters and other written material. The worldwide market for word processors (not including specialized copy-processing systems, such as those used in newspaper offices) has exploded at some 50% a year since 1975, according to Sanford J. Garrett, a security analyst at Paine Webber who specializes in office-technology companies. This year the value of shipments should reach $4 billion.

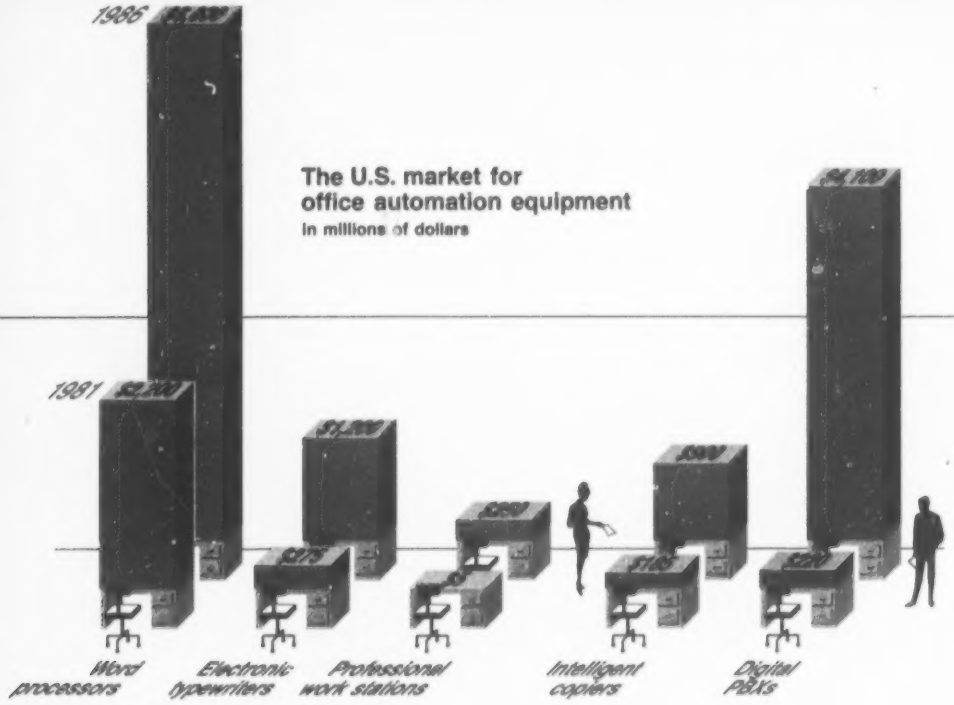
Users have taken word processors to their bosoms because the devices appear to increase the productivity of secretaries, as measured by the number of pages typed per hour. But some office-automation experts believe customers often do an incomplete job of measuring the costs. Until recently, word processors have been complex and expensive. (Even now, the simplest system costs at least $6,000.) Trying to use the devices efficiently, many buyers set up centralized word-processing departments. That approach creates a lot of hidden overhead. Thomas M. Lodahl, head of office-automation consulting for the Diebold Group, says that often the time spent scheduling, administering, and carrying copy to and from a word-processing center wipes out the time saved directly by using the machines to compose and revise documents.

"You can't get hard proof"

A recent study by SRI International, the market-research firm, states the case starkly. After surveying 4,000 offices to find out which activities could be automated at a profit, SRI discovered that in all but special cases, such as legal departments, there were few direct cost savings from any current form of office automation, including word processing. The study left open the possibility that indirect benefits make word processing worthwhile. But those benefits are extremely hard to measure. Patricia B. Seybold, who has reviewed dozens of word processors in her newsletter, *The Seybold Report on Office Systems*, says: "The organizational benefits of word processing, such as making work flow more smoothly or sending off a bid more quickly, are so intangible that you can't get hard proof of dramatic savings."

Still, the word-processing market is likely to keep bounding ahead. For one thing, many secretaries have come to see a word processor as a standard perquisite. Before accepting a new job, legal secretaries sometimes insist on having a word

continued



The U.S. market for office automation equipment
in millions of dollars

High Hopes for Growth

U.S. shipments of gear that can be linked up to form electronic offices should grow 34% a year through 1986, according to Dataquest Inc. Intelligent copiers use lasers to print copy from computer data; the shipment figures here include digital facsimile machines. Digital PBXs are switchboards, among them some designed to handle telephones and computer terminals simultaneously.

processor from NBI, which has specialized in systems for handling long, complex documents that use lots of boilerplate. Many people who type less specialized material covet Wang word processors, which are relatively easy to use and so widespread they've achieved the status of basic equipment.

Growth will also come because the market is far from saturated. Charles C. Hall, vice president for word processing at Lanier Business Products, estimates that about 500,000 secretaries now have word processors and that about as many more do enough typing to be logical prospects for getting one. Hall adds, "As secretarial salaries rise and our prices drop, it will be easier to justify the cost of a word processor for even the light typist." Other corporate buyers will want the machines for the qualitative benefits they offer. Says Frank Gatewood, who's been putting in word processors for years at Bank of America: "The fact that you can quickly do one more revision of a proposal may make all the difference in your getting the business."

Once anybody uses a word processor or any type of work station successfully, he tends to be a lifelong convert. "You can't do pilot projects," says Joe Ramellini, manager of office systems for CBS. "If users like the equipment, they'll chain themselves to it rather than let you remove it." Sellers and buyers alike compare the compulsive appeal of work stations to that of peanuts, popcorn—and heroin. A psychologist called in by Xerox to evaluate the impact of removing work stations commented, "My God! I haven't seen dependence like this outside a methadone clinic."

Companies that want to make it big in office automation are exploiting that appeal. The most successful vendors court the end user and are actually encouraged to do so by most corporate customers: these buyers will designate "preferred" vendors but leave the final decisions to the line managers and secretaries who have to use the gear. In one effort to get down to the grass roots, Digital Equipment allowed three of its executive secretaries to give public seminars on word processing at two hotels near Boston. About 1,100 secretaries showed up and Digital now plans to give similar presentations around the country.

Since a manufacturer who puts any sort of usable work station on a desk has excellent prospects for getting all new business from that desk for years, sellers are racing to put work stations in place. Last November Xerox announced a new line of electronic typewriters designed to be upgraded into word processors after the company has seized legions of desks. In 1980 IBM shook up the industry by launching a cut-price word processor called the Displaywriter, and competitors have followed suit. There's a Wangwriter, a Docuwriter from NBI, an Infowriter from Honeywell, an Ofiswriter from Burroughs, and even an Apple Writer program that makes the Apple personal computer behave like a word processor. All these products are meant to be the first stage in an endless progression of upgrades.

Saving time with Stars

For office automation to realize its promise, the manufacturers must reach beyond the secretary to managers and professionals, who account for 80% of white-collar salaries. But word processors, says David Crockett of Dataquest, a California-based market-research firm, are "terrifying to non-secretaries because the keyboards look so complicated." So vendors are casting about for some other kind of work station attractive enough to overcome upper-echelon fears.

The main problem is specifying exactly what steps or processes managers and professionals go through in doing their jobs. Thanks to some 9,000 man-years of experiments, Xerox seems furthest along in understanding professionals—lawyers, engineers, market researchers, and the like. David E. Liddle, a vice president in Xerox's office-products division, points to four major "professional" activities: the communication of data and ideas that are still in a pliable state and being worked on by groups of professionals; the creation of documents; the filing and retrieval of documents; and the distribution of written work. Xerox's 8010 (commonly called Star), a professional work station introduced last year, seeks to automate those tasks, and Liddle reports impressive time savings (see "Xerox Xooms Toward the Office of the Future," FORTUNE, May 18,

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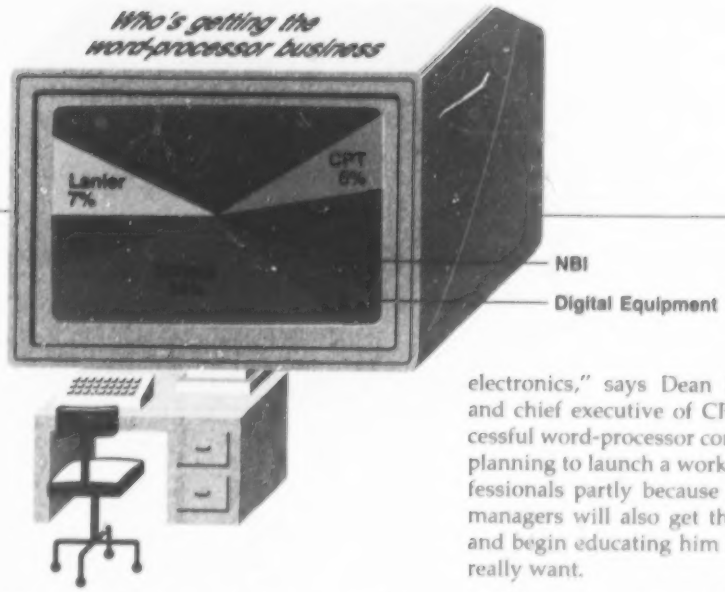

1981). In tests by the company's own patent department, a Star system cut the average time needed to prepare a patent application from four weeks to one.

But a Star, which costs $15,000, doesn't work well standing alone; it needs to be hooked up with other equipment such as an electronic filing cabinet. That makes a Star system expensive. The average price of the 70 complete systems Xerox has installed for customers is $270,000. Personal computers may be better work stations for professionals since they cost less to begin with—about $5,000—and don't need much ancillary equipment. John Barry, a Xerox market strategist, says he recently talked with five large corporations that in total were considering the purchase of 100,000 personal computers.

They should be called rabbits

It's still challenging to learn how to use a personal computer, but for reasons of both utility and fashion, they're spreading through the office like a plague. (See "The Coming Struggle in Personal Computers," FORTUNE, June 29, 1981.) "Apples," jokes Lodahl of the Diebold Group, "should be called rabbits because they multiply so fast." He cites an example at CIL, a Canadian chemical company: "Two years ago one professional brought his Apple to work; now the company has 75 of them." Some consultants feel professionals will design their own offices of the future using personal computers as work stations. Established office-automation companies, having noted the spread of word-processing programs for personal computers, think turnabout is fair play. Low-end word processors from IBM, Wang, and NBI now run the most popular personal-computer programs.

Vendors of office-automation equipment dearly want to crack a higher market: executives. Strategically it's vital to put a useful work station on the managerial desk. "Once the top brass decide office automation is good," says the office-systems manager for one large company, "the return on investment for the gear doesn't matter. You buy it anyway." Two years ago at Lincoln National Life in Fort Wayne, Indiana, Chairman Ian Rolland started using a computer terminal to send and receive intra-office messages; now almost all top managers are tied into the system, the annual budget for office automation has risen 66% to $1.5 million, and Lincoln will add 150 terminals to the 600 it already has. Similar breakthroughs happened at Merrill Lynch a couple of years ago, after then Chairman Donald Regan started using a terminal, and at Northwest Industries, where President Ben Heineman has brought 120 of his managers into a system he helped design. When the boss gets a terminal, his team tags along, if only in self-defense. Mort Miller, who manages computer systems for Schering-Plough, says, "We're putting in electronic mail, and we're driving it from the top down. People have an incentive to use the system if the boss may have left them a message."

IBM Grabs More Desks

Last year, according to Paine Webber estimates, IBM nearly doubled its share of word processors shipped worldwide. Most early leaders, such as Vydec and Redactron, have slipped into insignificance.

But top managers who feel comfortable with a computer terminal are rare; most executives are still technophobic. Vendors themselves puzzle over what kind of managerial system they should be pushing to handle work that is customarily diversified and amorphous. "Nobody knows how to make a manager more productive with electronics," says Dean Scheff, founder and chief executive of CPT Corp., a successful word-processor company. Scheff is planning to launch a work station for professionals partly because he hopes some managers will also get their hands on it and begin educating him as to what they really want.

Changing voices into digits

The first part of the office of the future that managers will accept may be an electronic mail system for sending and receiving messages at a video terminal. Since most executives chafe under the yoke of slow mail service, the electronic variety, which cuts the time needed to communicate from days or hours to seconds, has clear-cut appeal. This year, according to International Resource Development, a Connecticut-based market-research firm, U.S. business will spend some $20 million on computerized message systems that use video terminals.

The other early winner may be "voice store and forward," a system for changing voices into the digital language of computers so messages can be stored and retrieved and even distributed to many people at once. IBM delivered its first such systems last February, Wang has announced its own version, and ECS Telecommunications of Dallas, a new company that had $5 million in revenues last year, has produced some 30,000 voice "mailboxes."

Voice mail shines because of the pesky phenomenon called "telephone tag," which forces the average business caller to try four times before he reaches the party he wants. With an ECS system, the caller often doesn't try to get his party on the phone at all. Instead he deposits a voice message after dialing a special exchange and punching a few buttons on his telephone. The recipient picks up the message in a similar fashion. American Express,

continued

"God help the user who tries to link disparate equipment."

which calculates that voice mail pays for itself if every manager uses it just once a day, also puts the day's top news and business stories in its mailboxes; Hoffmann-La Roche leaves mailbox messages for salesmen working in the field. When the drummer knows there may be an easily accessible voice message waiting for him, he can't plead isolation or missed instructions, so sales productivity rises.

Electronic mail and voice mail excite planners because they are ways to establish office-automation beachheads. Both services, though, will run into snags as vendors try to parlay them into more complex work stations. Voice mail is now transmitted by the common telephone. Though AT&T, Northern Telecom, and Mitel have demonstrated electronic boxes that include a telephone, a video screen, and a keyboard, it's unlikely that customers who really want to buy just voice-mail service will plunk down the $1,400 to $2,000 such fancier gear costs.

A frightening Tower of Babel

Electronic mail requires putting a terminal on each desk, and that's certainly a start toward more elaborate work stations. But as customers try to do more with electronic-mail stations, perhaps using them to pull data out of their company's electronic files or to look at what a secretary has stored in her word processor, they'll run up against a communications problem that is seriously impeding the growth of office automation. Not all terminals have been designed to tap into big corporate computers; almost none can talk easily with work stations of another brand, nor can they always do so with other models of the same brand. "God help the user who tries to link up disparate equipment," warns Victor D. Poor, executive vice president for R&D at Datapoint.

The prospect of being saddled with an office-automation system that's a Tower of Babel frightens many corporate purchasers. To lull their fears, manufacturers are pushing "local area networks"—assemblages of cables and switches that will be used to interconnect work stations. Xerox claims its Ethernet system will be simple for other manufacturers to hook into. Wang pushes Wangnet, which, unlike Ethernet, can easily carry voice and video signals. Last month IBM disclosed details of its own system, unique in its design. "The local network is undoubtedly the hot issue of the 1980s," says Ed Gistaro of Datapoint, whose entry is Arcnet, which has been sold for more than 2,000 networks of Datapoint minicomputers. "You have to have one—or at least a credible way of hooking into somebody else's—to get any customer to listen to you."

Whose system prevails is important, for the winner's equipment will mesh with his network more easily than will gear from other manufacturers. Wang and Xerox have started a street fight, accusing each other of making false claims and trying to sucker users. This confusing scrap has made buyers slower to purchase networks, admits Liddle of Xerox. For example, R. Dennis Wayson, director of corporate information systems for Sun Co., says, "Networks will be very important to our system, but we're not sure how to go. We built a conduit in our new Dallas offices, but we can't decide what kind of cable to pull through it."

The battle of the networks is especially puzzling to companies that make telephone switchboards, for they don't see any need for special conduits. Instead these companies envision networks of work stations that communicate through switchboards and the telephone wires that already snake through customers' buildings. "We've developed a digital switch that handles both telephones and work stations," says Janice Carnes, a marketing manager for Rolm Corp., one of the top three switchboard companies. "I just wish we had called it Rolmnet." Since the technology she's talking about is new and competing technologies are still developing, it isn't entirely clear which will be the cheaper for the office of the future. But switchboards seem to have a major advantage: even in advanced office systems, most traffic will consist of telephone conversations. Since

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There are market niches for any company that can fill a need.

these must be switched in any case, the cost of adding switching capacity for work stations is only incremental.

Given the muddled state of the office-automation market, picking winners is like picking horses: the best you can do is look at the racing form. On that basis IBM should take first place. Big Blue was slow to see the potential of office automation and still doesn't have a well-designed product line. It also made the mistake of selling office-automation products out of three different divisions, an arrangement that alienated customers already beset by hordes of salesmen. "Dealing with IBM was like dealing with three entirely different companies," says Jerrold J. Eisen, an office-systems consultant who has advised many large users.

But IBM is turning around now. It is reorganizing to streamline its product development and marketing efforts and has issued a rare "Statement of Direction" describing in detail what its office systems will look like in the future. That's impressed buyers, who have never before been clued in to IBM's intentions, and so has the fact that IBM's sales and service forces lurk everywhere. Eisen concludes, "We may not see the fruits of IBM's turnaround for another two or three years, but when we do, IBM will sweep the field."

The competitor to beat

Wang could be No. 2. Aside from IBM, it's the only company with a complete product line for the office, and it has what IBM lacks—standardized machines that enable operators trained on the smallest Wang system to use its largest one without being retrained. A negative for the company is that customers worry about its ability to service equipment in the field. Still, says Garrett of Paine Webber, "when you talk to the vendors, they see Wang as the competitor to beat."

After those two, it's a real horse race. Third place may be a photo finish between Digital Equipment and Xerox, both of which are rushing to overcome slow starts. Digital's first word-processing systems were so hard to use that formerly loyal customers booted them out. Now the company has made a comeback with office systems that flaunt powerful electronic-mail capabilities and allow the user to train himself with step-by-step programs that show up on the screen. Xerox, which once made word processors so ornery that they caused secretaries to collapse in tears, has bet over $100 million of development expense on Star and related products. Some buyers are hesitating because they have seen Xerox launch products before that do not communicate well with each other and suspect that could happen again.

Several minicomputer, word-processor, and even switchboard companies will get pieces of the work-station business. Few, however, are apt to win master contracts from large corporate customers: the big spenders like to limit the number of vendors to two or three, and the front-runners should preempt that business. Yet there still are enough profitable niches in the market to reward any company that can fill a particular customer need.

The results won't be in for years. Word processors, the most straightforward components of the office of the future, should keep on booming. Switchboards that handle voice and data communications simultaneously ought to take off next year, when they become more widely available. But the more complex products, such as professional work stations and intelligent copiers, won't come into their own for some time. By 1985, for example, only about 6% of managers and professionals are likely to be using sophisticated work stations.

Despite the universal desire of businessmen to find better ways of doing work, office automation remains poorly understood. "Users can't articulate what they want, and suppliers aren't that good at figuring it out," says Patricia Seybold, the reviewer of office systems. "It's the blind leading the blind." So office automation will not arrive as a revolution, but gradually, as vendors and users educate each other. The journey to the promised land may not take 40 years, but it's apt to remain painfully slow. ■

THE FORTUNE DIRECTORY OF THE LARGEST U.S. INDUSTRIAL CORPORATIONS

The 500

For the first time in the FORTUNE 500's 28-year history, General Electric slipped from the ranks of the top ten in 1981. From 1958 to 1972 GE was No. 4—behind only General Motors, Ford, and Exxon, known then as Standard Oil (New Jersey). Though GE's revenues (and profits) have grown smartly, the sales of oil companies rose much faster. No. 10 on last year's list, GE is now No. 11, overtaken by Atlantic Richfield, which has been moving steadily up—from No. 26—since the oil crisis of 1973. GE's departure from the top ten marks the first change in that select group since 1979, when Chrysler was replaced as No. 10 by Standard Oil (Indiana). Seven of the top ten are now oil companies.

Another departure of note is that of the longest-reigning boss of a 500 company: Henry H. Reichhold is stepping down at 80 as chief executive of Reichhold Chemicals (No. 320). Brief reports on this and other noteworthy aspects of the 500 appear on the pages following the directory.

In a year marred by inflation, recession, and the emergence of an oil glut, Exxon kept a firm grip on the No. 1 slot with sales of $108 billion—a scant increase of 4.8% over 1980. Total sales of the 500 went up 7.5%, to $1.8 trillion, not quite keeping up with inflation. The consumer price index—the deflator the Financial Accounting Standards Board recommends—rose 8.9%, meaning that in real terms the 500's sales declined 1.4%.

The greatest sales increase among the 500 resulted, of course, from a merger. The champion gainer was Nabisco, not Du Pont, whose gobbling up of Conoco was 1981's biggest deal. Although Du Pont's sales vaulted 67.1%, the company moved up just three places, to No. 12—in part because the acquisition was not final until September 30, so that Du Pont could consolidate only three months of Conoco's figures. Nabisco boosted its sales 126.5% by merging with Standard Brands, No. 128 last year, to become Nabisco Brands. It climbed 92 places in sales rank, from No. 152 to No. 60.

Not every big sales gain can be traced to a merger. Geosource, a Houston-based manufacturer of oil exploration and production equipment, increased its sales by $289 million, or 65.6%, entering the 500 as No. 381. But the huge growth of the exploration-services side of Geosource's business may eventually take the company out of the ranks of industrial corporations. (To meet FORTUNE's definition of an industrial, a company must derive more than 50% of its revenues from manufacturing or mining and publish its financial results. For detailed definitions, see the directory notes, page 280.)

Where's the profit?

Profits, which totaled $84 billion for the 500, were up 3.7% from the 1980 figure. But after adjustment for inflation, profits were *down* 5.2%—still a considerable improvement over 1980. An inflation rate of 13.5% pulled real profits that year into a decline of almost 10%.

Exxon was No. 1 in profits as well as sales. Its net income of $5.6 billion—though down 1.5%, or $83 million, from 1980—was greater than the *sales* of 437 of the 500. Sixteen companies had profits of $1 billion or more—up one from the previous year. One oddity: the $1.5 billion in profits that Joseph E. Seagram & Sons (No. 238) reported was slightly more than its sales (see page 290).

Only Ford, No. 6, lost as much as $1 billion last year, but 30 other companies also reported losses. Two of the money losers were oil refiners. Commonwealth Oil (No. 314), long a familiar name on the losers' list because its 141,000-barrel-a-day refinery in Puerto Rico is dependent on high-priced OPEC oil, emerged from three years of bankruptcy in 1981—and lost another $212 million. Cities Service (No. 39) dropped $49 million, thanks to a onetime charge against earnings from dumping an unprofitable plastics operation.

Negative figures appear as stockholders' equity for two companies—Chrysler (No. 26) and Rath Packing (No. 491). In restructuring itself, Chrysler has issued $1 billion of redeemable preferred stock to lenders in exchange for debt; FORTUNE, following the SEC's lead, does not include certain types of redeemable preferred stock in equity because the capital must be paid back. Rath's negative stockholders' equity has a different source: red ink. Accumulated deficits have eaten up the company's capital, and stockholders' equity stands at minus $5.2 million.

The 500's median return on sales dropped from 1980's 4.8% to 4.6%; the best year ever in this respect was 1966, when the 500 attained a 5.6% return on sales. Median return on stockholders' equity was also down—from 14.4% to 13.8%—though Titanium Metals Corp. (No. 469) managed, partly by legerdemain, to produce a return of 91% for its lucky stockholders—all two of them (see page 294).

Stocks of the 500 did just about what one would expect in a languishing economy. An investor who bought stock in the 500's median performer—it happens to be Pennzoil (No. 159)—on December 31,

1980, and cashed it in precisely one year later would have had a minus total return (dividend yield plus stock-price appreciation) of .35%. The all-industry median was pulled down by those stars of yesteryear, the oil stocks; the median total returns of the petroleum refining and mining and crude-oil production industry groups fell almost 25%. Apparel stocks were a better investment; the median total return to investors in apparel companies last year was 37.7% (see page 296).

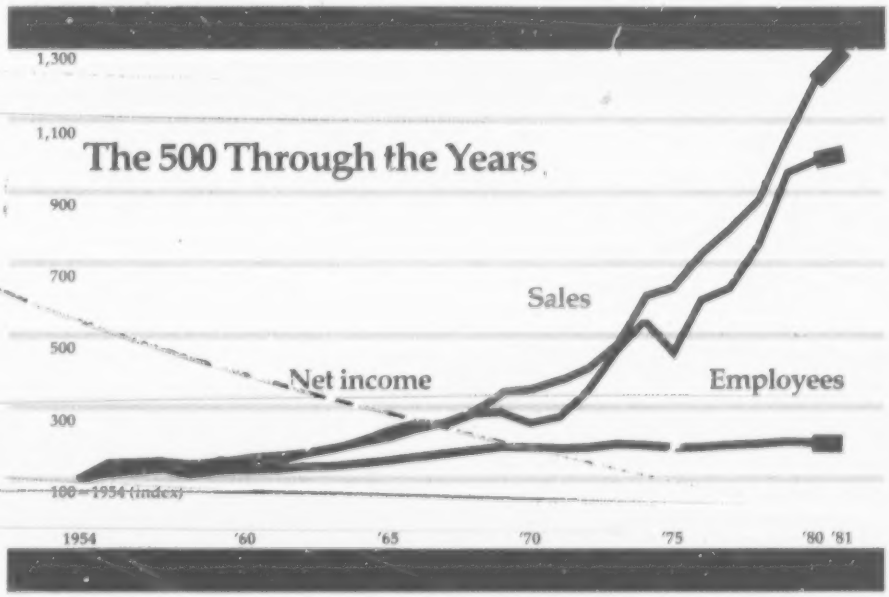
For the second year in a row the long-term investor in 500 stocks would have done fairly well. The annual average total return for ten years dropped from 1980's 9.4%, the highest since 1972, to a still respectable 8.52%. Some of the stocks were golden (see page 299).

A new directory

A record number of companies, 38, dropped out of the 500 last year. Twenty vanished because they were merged or acquired; that was only one less than went off the list for all reasons the year before. Six companies in broadcasting and motion-picture production—American Broadcasting, Columbia Pictures, CBS, Metromedia, MCA, and Twentieth Century-Fox—left the 500 and will jostle for places in a new directory of the largest diversified-service corporations that FORTUNE will publish in the July 12 issue.

Among the 11 companies returning to the 500 after absences of varying lengths—absences most often due to sales sagging below the cutoff—is one that has been gone 14 years. Engelhard, a metallurgy and chemical company then known as Engelhard Industries, last appeared in 1966. It turned ineligible for the list when it acquired a commodities-trading company and became predominantly a wholesaler, Engelhard Minerals & Chemicals. Last year that company divided itself into Phibro Corp., which took over Salomon Brothers in October, and Engelhard, which got the manufacturing operations. Engelhard has done nicely in its years off the list. No. 271 in 1966, it is now No. 180. —MONCI JO WILLIAMS

Performance of the 500	1981	1980
Sales (billions)	$1,773.4	$1,650.2
Change in sales	7.5%	14.2%
Profits (billions)	$84.2	$81.2
Change in profits	3.7%	3.6%
Assets (billions)	$1,282.8	$1,175.5
Number of sales increases	413	415
Number of profit increases	302	292
Number of money losers	31	24
Median return on sales	4.6%	4.8%
Median return on equity	13.8%	14.4%
Median total return for the year	-.35%	21.05%
Number of employees (millions)	15.6	15.9



The figures are impressive, but all was not 100% in the land of the 500 last year. Sales growth eased (and did not keep up with inflation). Profits increased more slowly than sales. The number of employees slipped to 15.6 million. The decline in jobs helped account for at least one other increase: average sales per employee, a measure of productivity, climbed $9,694 from the previous year to $113,424.

THE 500 LARGEST INDUSTRIAL CORPORATIONS (ranked by sales)

RANK '81	RANK '80	COMPANY	SALES ($000)	ASSETS ($000)	ASSETS RANK	NET INCOME ($000)	NET INCOME RANK	STOCKHOLDERS' EQUITY ($000)	STOCKHOLDERS' EQUITY RANK
1	1	**Exxon** (New York)	108,107,688	62,931,055	1	5,567,481	1	28,516,916	1
2	2	**Mobil** (New York)	64,488,000	34,776,000	3	2,433,000	3	14,657,000	4
3	3	**General Motors** (Detroit)	62,698,500	38,991,200	2	333,400	57	17,721,100	3
4	4	**Texaco** (Harrison, N.Y.)	57,628,000	27,489,000	5	2,310,000	5	13,752,000	5
5	5	**Standard Oil of California** (San Francisco)	44,224,000	23,680,000	7	2,380,000	4	12,703,000	6
6	6	**Ford Motor** (Dearborn, Mich.)	38,247,100	23,021,400	8	(1,060,100)	490	7,362,200	13
7	9	**Standard Oil (Indiana)** (Chicago)	29,947,000	22,916,000	9	1,922,000	7	10,665,000	7
8	8	**International Business Machines** (Armonk, N.Y.)	29,070,000	29,586,000	4	3,308,000	2	18,161,000	2
9	7	**Gulf Oil** (Pittsburgh)	28,252,000*	20,429,000	11	1,231,000	14	9,984,000	9
10	11	**Atlantic Richfield** (Los Angeles)	27,797,436	19,732,539	13	1,671,290	9	8,665,221	12
11	10	**General Electric** (Fairfield, Conn.)	27,240,000	20,942,000	10	1,652,000	10	9,128,000	11
12	15	**E.I. du Pont de Nemours** (Wilmington, Del.)[1]	22,810,000	23,829,000	6	1,401,000	12	10,458,000	8
13	12	**Shell Oil** (Houston)	21,629,000	20,118,000	12	1,701,000	8	9,245,000	10
14	13	**International Telephone & Telegraph** (New York)	17,306,189	15,052,377	16	676,804	24	6,116,230	16
15	16	**Phillips Petroleum** (Bartlesville, Okla.)	15,966,000	11,264,000	20	879,000	17	5,481,000	18
16	17	**Tenneco** (Houston)[2]	15,462,000	16,808,000	14	813,000	19	5,045,000	20
17	18	**Sun** (Radnor, Pa.)	15,012,000	11,822,000	19	1,076,000	16	5,006,000	21
18	20	**Occidental Petroleum** (Los Angeles)[3]	14,707,543	8,074,543	28	722,216	22	2,864,120	38
19	19	**U.S. Steel** (Pittsburgh)	13,940,500	13,316,100	17	1,077,200	15	6,260,000	15
20	21	**United Technologies** (Hartford)	13,667,758	7,555,103	32	457,666	37	3,212,511	33
21	23	**Standard Oil (Ohio)** (Cleveland)[4]	13,457,091	15,743,296	15	1,946,898	6	5,963,042	17
22	22	**Western Electric** (New York)[5]	13,008,000	8,338,300	25	711,300	23	4,991,200	22
23	26	**Getty Oil** (Los Angeles)	12,887,360	9,536,356	22	856,865	18	4,773,529	24
24	25	**Dow Chemical** (Midland, Mich.)	11,873,000	12,496,000	18	564,000	31	4,891,000	23
25	24	**Procter & Gamble** (Cincinnati)[6]	11,416,000	6,961,000	35	593,000‡	29	3,863,000	27
26	32	**Chrysler** (Highland Park, Mich.)	10,821,600	6,270,000	38	(475,600)	489	(539,500)	498
27	28	**Union Oil of California** (Los Angeles)	10,745,900	7,592,800	31	791,400	20	4,114,200	25
28	29	**Eastman Kodak** (Rochester, N.Y.)	10,337,000	9,446,000	23	1,239,000	13	6,770,000	14
29	31	**Dart & Kraft** (Northbrook, Ill.)[7]	10,211,000	5,053,800	56	347,500	53	2,718,000	41
30	27	**Union Carbide** (Danbury, Conn.)	10,168,000	10,423,000	21	649,000	27	5,263,000	19
31	30	**Boeing** (Seattle)	9,788,200	6,953,700	36	473,000	35	2,655,200	43
32	35	**R.J. Reynolds Industries** (Winston-Salem, N.C.)	9,765,700*	8,096,000	27	767,800	21	3,929,500	26
33	43	**Amerada Hess** (New York)	9,396,219	6,321,581	37	212,591	92	2,490,839	47
34	34	**Westinghouse Electric** (Pittsburgh)	9,367,500	8,316,200	26	438,000	40	2,820,700	39
35	40	**Ashland Oil** (Russell, Ky.)[8,10]	9,262,076	4,097,433	68	90,032	204	971,802	157
36	39	**Marathon Oil** (Findlay, Ohio)	9,219,991*	5,993,623	41	343,059	55	2,062,520	59
37	33	**Caterpillar Tractor** (Peoria, Ill.)	9,154,500	7,284,900	33	578,900	30	3,856,800	28
38	36	**Goodyear Tire & Rubber** (Akron, Ohio)	9,152,905	5,354,259	50	260,295	73	2,375,433	50
39	44	**Cities Service** (Tulsa)	8,899,300	6,048,500	40	(49,200)	478	2,106,900	57
40	42	**LTV** (Dallas)	8,822,700†	4,332,700	63	386,300	45	1,285,400	111
41	37	**Beatrice Foods** (Chicago)[11]	8,772,804	4,236,555	65	304,211	65	2,181,445	53
42	38	**Xerox** (Stamford, Conn.)	8,691,000	7,674,400	30	598,200	28	3,727,600	29
43	45	**Philip Morris** (New York)	8,306,600*	9,245,300	24	676,200	25	3,304,600	32
44	41	**RCA** (New York)	8,004,800	7,856,700	29	54,000	274	1,687,900	73
45	53	**McDonnell Douglas** (St. Louis)	7,384,900	4,364,200	62	176,600	109	1,653,500	77
46	49	**International Harvester** (Chicago)[12]	7,327,165	5,346,122	51	(393,128)	487	1,284,994	112
47	47	**Bethlehem Steel** (Bethlehem, Pa.)	7,298,000	5,282,100	53	210,900	95	2,763,200	40
48	46	**Rockwell International** (Pittsburgh)[9]	7,039,700	4,809,000	59	291,800	68	1,939,700	62
49	54	**PepsiCo** (Purchase, N.Y.)	7,027,443	4,057,061	69	333,456	56	1,640,304	78
50	48	**Monsanto** (St. Louis)	6,947,700	6,069,200	39	445,100	39	3,330,200	31

THE DEFINITIONS AND CONCEPTS UNDERLYING THE FIGURES IN THIS DIRECTORY ARE EXPLAINED ON PAGE 280.

†Includes sales from discontinued operations if at least 10%; see explanation of "sales" on page 280.

*Does not include excise taxes; see the explanation of "sales" on page 280.

**Reflects an extraordinary credit of at least 10%; see the explanations of "net income" and "earnings per share" on page 280.

†Average for the year; see the reference to "employees" on page 280.

‡Reflects an extraordinary charge of at least 10%; see the explanations of "net income" and "earnings per share" on page 280.

[1]Figures include Conoco (1980 rank: 14), acquired September 30, 1981.

[2]Figures include Houston Oil & Minerals (1980 rank: 541), acquired April 24, 1981.

[3]Figures include Iowa Beef Processors (1980 rank: 81), acquired August 12, 1981.

EMPLOYEES		NET INCOME AS PERCENT OF SALES		NET INCOME AS PERCENT OF STOCKHOLDERS' EQUITY		EARNINGS PER SHARE			GROWTH RATE 1971-81		TOTAL RETURN TO INVESTORS 1981		TOTAL RETURN TO INVESTORS 1971-81 AVERAGE		
NUMBER	RANK	%	RANK	%	RANK	'81($)	'80($)	'71($)	%	RANK	%	RANK	%	RANK	INDUSTRY CODE
180,000†	8	5.1	198	19.5	84	6.44	6.50	1.69	14.31	191	(15.04)	347	12.11	143	29
206,400	6	3.8	307	16.6	158	5.72	7.70**	1.33	15.71	166	(35.30)	439	12.18	142	29
741,000†	1	0.5	453	1.9	453	1.07	(2.65)	6.72	(16.79)	411	(9.11)	296	0.71	384	40
66,728	49	4.0	290	16.8	153	8.75	9.79**	3.32	10.18	282	(25.42)	401	6.81	269	29
43,281	101	5.4	181	18.7	96	6.96	7.02	1.51	16.51	151	(9.40)	297	17.60	65	29
404,788†	2	—		—		(8.81)	(12.83)	4.04	—		(10.25)	303	(4.47)	427	40
58,665	64	6.4	123	18.0	115	6.56	6.54	1.24	18.13	130	(31.64)	423	15.94	84	29
354,936	4	11.4	27	18.2	109	5.63	6.10	1.88	11.59	249	(11.14)	309	1.88	369	44
58,500	65	4.4	265	12.3	295	6.37	7.21	2.70	8.96	301	(12.59)	324	9.09	214	29
54,200	75	6.0	146	19.3	90	6.66	6.64	0.88	22.43	74	(22.87)	390	13.44	120	29
404,000†	3	6.1	142	18.1	114	7.26	6.65	2.60	10.81	265	(1.26)	244	3.09	350	36
177,235	9	6.1	136	13.4	257	7.55	4.83	2.44	11.96	239	(4.77)	269	2.40	361	28
37,273	119	7.9	81	18.4	103	5.51	4.99	0.91	19.73	105	(21.37)	381	18.93	53	29
324,000	5	3.9	295	11.1	334	4.58	6.12	2.65‡	4.86	361	7.62	181	(0.34)	400	36
34,500	129	5.5	173	16.0	175	5.78	7.01	0.89	20.57	93	(27.32)	407	13.74	115	29
103,200	21	5.3	189	16.1	171	6.01	5.95	2.28	10.18	261	(30.07)	416	8.91	219	29
45,062	95	7.2	98	21.5	47	8.85	5.92	1.32	20.96	88	(2.52)	255	12.80	135	29
47,804	91	4.9	222	25.2	24	7.77	8.82	(1.51)‡	—		(23.90)	393	12.02	146	10
141,623†	12	7.7	86	17.2	140	12.07	5.77	1.90	20.3	96	28.78	72	10.31	185	33
190,000	7	3.3	334	14.2	228	7.71	7.28	(1.81)	—		(26.24)	411	16.36	80	41
56,672	68	14.5	12	32.6	8	7.92	7.37	0.50	31.82	35	(39.24)	451	17.70	64	29
168,000†	10	5.5	176	14.3	227	N.A.	N.A.	N.A.	—		—		—		36
19,128	220	6.6	118	18.0	118	10.42	10.60	1.70	19.88	103	(27.16)	406	13.96	111	29
63,800	55	4.8	232	11.5	316	3.00	4.42	0.85	13.44	210	(12.69)	325	6.44	275	28
60,000	61	5.2	194	15.4	199	7.17‡	7.78	2.91	9.44	295	22.36	109	3.31	347	43
87,825†	29	—		—		(7.18)	(26.00)	1.67	—		(30.81)	419	(15.24)	454	40
19,399	217	7.4	94	19.2	91	4.56	3.73	0.80	19.01	115	(13.78)	337	20.17	44	29
136,400	14	12.0	22	18.3	107	7.66	7.15	2.60	11.41	255	6.99	188	0.08	393	38
88,498	28	3.4	329	12.6	283	6.36	7.03	3.21[8]	7.08	332	24.48	99	6.28	278	20
110,255	19	6.4	125	12.3	294	9.56	13.36	2.61	13.86	198	8.80	173	7.87	243	28
105,300†	20	4.8	228	17.8	122	4.90	0.23	0.43**	27.55	46	(45.84)	460	22.68	24	41
85,776	30	7.9	82	19.5	83	7.06	6.23	2.55	10.75	268	8.77	175	10.60	178	21
9,025†	361	2.3	405	8.5	391	2.53	6.44	1.52	5.23	355	(42.48)	456	5.61	288	29
147,841†	11	4.7	239	15.5	193	5.10	4.71	2.08	9.38	297	(7.85)	285	(0.41)	401	36
34,400	130	1.0	444	9.3	379	2.22	6.80	0.51‡	15.85	161	(17.17)	354	13.23	127	29
16,168	250	3.7	309	16.6	157	5.82	6.27	1.14‡	17.71	134	20.49	116	21.67	29	29
83,455†	34	6.3	131	15.0	206	6.64	6.53	1.50	16.04	158	(0.18)	234	9.13	211	45
137,982†	13	2.8	369	11.0	338	3.59	3.18**	2.34	4.37	369	26.87	79	1.28	375	30
20,200	209	—		—		(0.60)	5.73	1.22	—		(0.32)	235	17.83	62	29
53,000	77	4.4	263	30.1	12	7.97	3.95	(9.28)‡	—		(16.59)	352	4.62	309	33
80,000	36	3.5	324	13.9	240	2.94	2.61	1.11	10.23	279	0.66	226	2.54	358	20
120,981	16	6.9	107	16.0	174	7.08	7.33	2.71	10.08	285	(27.44)	408	(8.10)	442	38
72,000	43	8.1	71	20.5	62	5.41	4.63	1.01	18.27	126	17.11	138	13.29	125	21
119,000	18	0.7	450	3.2	450	(0.19)	3.35	(2.16)‡	—		(31.76)	425	(1.42)	406	36
74,264	41	2.4	397	10.7	349	4.44	3.65	2.10	7.77	321	(37.68)	447	3.46	344	41
65,640	51	—		—		(12.90)	(12.91)	1.65	—		(71.03)	469	(7.98)	441	40
83,800†	32	2.9	366	7.6	403	4.83	2.77	3.14	4.40	367	(5.77)	273	4.05	329	33
103,000	22	4.1	283	15.0	205	3.84	3.77	1.05	13.85	199	(23.93)	394	14.73	99	41
120,000	17	4.7	233	20.3	66	3.61	3.01	0.91	14.77	185	38.70	44	7.66	248	49
57,391	66	6.4	124	13.4	260	11.50	4.10	2.65	15.81	163	7.65	183	8.58	228	28

[4]Figures include Kennecott (1980 rank: 169), acquired June 4, 1981.
[5]Wholly owned by American Telephone & Telegraph.
[6]Figures are for fiscal year ending June 30, 1981.
[7]Figures include Hobart (1980 rank: 402), acquired April 29, 1981.
[8]Figure is for Kraft.
[9]Figures are for fiscal year ending September 30, 1981.
[10]Figures include U.S. Filter (1980 rank: 334), acquired March 31, 1981.
[11]Figures are for fiscal year ending February 28, 1981.
[12]Figures are for fiscal year ending October 31, 1981.

THE 500 LARGEST INDUSTRIALS

RANK '81	RANK '80	COMPANY	SALES ($000)	ASSETS ($000)	ASSETS RANK	NET INCOME ($000)	NET INCOME RANK	STOCKHOLDERS' EQUITY ($000)	STOCKHOLDERS' EQUITY RANK
51	58	**Armco** (Middletown, Ohio)	6,906,000	4,817,200	58	294,500	67	2,467,200	48
52	55	**General Foods** (White Plains, N.Y.)[18]	6,601,255	3,129,842	92	255,366	75	1,810,332	80
53	51	**W.R. Grace** (New York)	6,520,800	5,021,500	57	361,300	50	2,061,000	60
54	52	**Minnesota Mining & Manufacturing** (St. Paul)	6,508,000	5,422,000	46	673,000	26	3,449,000	30
55	59	**Allied** (Morristown, N.J.)[14,15]	6,407,000	5,344,000	52	348,000	52	1,900,000	66
56	75	**Union Pacific** (New York)	5,374,682	7,096,971	34	410,710	43	3,097,241	37
57	61	**Lockheed** (Burbank, Calif.)	6,232,700†	2,104,800	156	(288,800)**	486	105,200	467
58	56	**Coca-Cola** (Atlanta)	6,129,251	3,564,781	77	481,782	34	2,270,772	52
59	66	**Coastal** (Houston)	5,909,702	3,182,916	91	(96,399)	482	477,066	255
60	152	**Nabisco Brands** (New York)[16]	5,819,200	3,429,200	81	266,300	72	1,522,800	86
61	57	**Gulf & Western Industries** (New York)[18]	5,702,476	5,893,224	42	290,887	69	2,179,038	55
62	69	**Raytheon** (Lexington, Mass.)	5,636,184	3,363,759	85	324,041	58	1,536,013	84
63	62	**Consolidated Foods** (Chicago)[6]	5,614,052	2,276,557	145	140,278	137	883,774	171
64	80	**Farmland Industries** (Kansas City, Mo.)[19]	5,503,323	2,217,410	147	N.A.[23]		547,049	232
65	60	**Deere** (Moline, Ill.)[12]	5,446,720	5,683,877	44	250,994	77	2,449,586	49
66	77	**Sperry** (New York)[13]	5,427,178	5,242,521	54	312,998	61	2,336,629	51
67	66	**Georgia-Pacific** (Portland, Ore.)	5,414,000	5,060,000	55	160,000	123	1,926,000	63
68	74	**Johnson & Johnson** (New Brunswick,. N.J.)	5,398,000	3,820,400	72	467,600	36	2,527,900	46
69	71	**Honeywell** (Minneapolis)	5,351,200	4,330,800	64	259,300	74	2,098,000	56
70	85	**Signal Companies** (La Jolla, Calif.)[20]	5,342,600	3,678,600	75	214,000	91	1,658,200	75
71	70	**TRW** (Cleveland)	5,285,133	3,126,603	93	228,830	82	1,417,646	95
72	64	**Colgate-Palmolive** (New York)	5,261,364	2,630,827	120	208,399	96	1,297,925	106
73	72	**Ralston Purina** (St. Louis)[6]	5,233,800	2,218,500	146	174,800	113	1,229,600	120
74	65	**Continental Group** (Stamford, Conn.)	5,194,400	4,170,500	66	242,200	79	1,572,600	82
75	84	**Charter** (Jacksonville, Fla.)	5,064,726	1,541,326	198	7,717	448	653,871	205
76	79	**General Dynamics** (St. Louis)	5,063,400	2,326,800	137	124,100	154	1,071,500	138
77	67	**International Paper** (New York)	4,983,400	5,544,300	46	525,000	32	3,197,400	34
78	63	**Aluminum Co. of America** (Pittsburgh)	4,977,500	5,653,800	45	296,200	66	3,136,700	35
79	88	**Litton Industries** (Beverly Hills, Calif.)[18]	4,942,835	3,687,606	74	311,566	63	1,422,581	93
80	89	**General Mills** (Minneapolis)[21]	4,852,400	2,301,300	140	196,600	102	1,145,400	132
81	76	**American Can** (Greenwich, Conn.)	4,836,400	2,835,800	108	76,700	229	1,041,700	142
82	78	**Greyhound** (Phoenix)	4,699,085	1,950,179	166	138,187	139	942,128	164
83	93	**Dresser Industries** (Dallas)[12]	4,614,500	3,273,300	89	316,600	59	1,924,600	64
84	83	**Weyerhaeuser** (Tacoma, Wash.)	4,501,512	5,716,490	43	228,344	83	3,107,865	36
85	82	**Borden** (New York)	4,415,174	2,508,816	126	159,939	124	1,318,755	102
86	87	**Bendix** (Southfield, Mich.)[6]	4,393,100	3,218,500	90	452,800	38	1,466,900	90
87	98	**Republic Steel** (Cleveland)	4,382,073	3,342,364	86	190,089	104	1,661,048	74
88	73	**Firestone Tire & Rubber** (Akron, Ohio)[12]	4,361,000	3,018,000	96	135,000	142	1,443,000	92
89	91	**CPC International** (Englewood Cliffs, N.J.)	4,343,100	2,462,000	129	218,400	89	1,235,100	117
90	•	**BATUS** (Louisville, Ky.)[22]	4,245,472	2,929,860	102	179,698	106	948,073	162
91	92	**Texas Instruments** (Dallas)	4,206,000	2,310,500	139	108,500	173	1,260,100	115
92	90	**IC Industries** (Chicago)	4,194,500	3,741,500	73	134,400	144	1,232,800	119
93	96	**American Home Products** (New York)	4,131,237	2,588,538	123	497,332	33	1,654,472	76
94	100	**National Steel** (Pittsburgh)	4,062,291	3,443,893	79	86,084	209	1,492,197	89
95	97	**United Brands** (New York)[6]	4,058,387	1,309,428	212	29,386	353	579,479	218
96	86	**American Brands** (New York)	4,039,096*	4,133,024	67	386,127	46	1,899,729	67
97	99	**Champion International** (Stamford, Conn.)	4,004,027	3,443,226	80	101,369	183	1,753,444	70
98	95	**Owens-Illinois** (Toledo)	3,943,300	3,072,200	94	154,100	126	1,422,000	94
99	110	**Anheuser-Busch** (St. Louis)	3,847,200*	2,875,200	106	217,400	90	1,206,800	125
100	147	**Agway** (DeWitt, N.Y.)[6, 24]	3,828,262	1,335,801	209	N.A.[23]		283,826	346

•Not among the 500 or the Second 500 in 1980.

*Includes sales from discontinued operations of at least 10%; see explanation of "sales" on page 280.

N.A. Not available.

*Does not include excise taxes; see the explanation of "sales" on page 280.

**Reflects an extraordinary credit of at least 10%; see the explanations of "net income" and "earnings per share" on page 280.

†Average for the year; see the reference to "employees" on page 280.

‡Reflects an extraordinary charge of at least 10%; see the explanations of "net income" and "earnings per share" on page 280.

[12]Figures are for fiscal year ending March 31, 1981.

[14]Name changed from Allied Chemical April 27, 1981.

[15]Figures include Bunker Ramo (1980 rank: 486), acquired July 1, 1981.

EMPLOYEES NUMBER	EMPLOYEES RANK	NET INCOME AS PERCENT OF SALES %	SALES RANK	NET INCOME AS PERCENT OF STOCKHOLDERS' EQUITY %	EQUITY RANK	EARNINGS PER SHARE '81($)	'80($)	'71($)	GROWTH RATE 1971-81 %	GROWTH RATE 1971-81 RANK	TOTAL RETURN TO INVESTORS 1981 %	1981 RANK	1971-81 AVERAGE %	1971-81 AVERAGE RANK	INDUSTRY CODE
67,660	47	4.3	275	11.9	305	4.97	4.73	0.96	17.87	132	(21.78)	383	13.93	112	33
53,000	76	3.9	300	15.9	181	5.14	5.12	2.38	8.00	318	12.23	160	4.59	313	20
88,800	27	5.5	168	17.5	128	7.58	6.08	1.60**	16.83	143	(18.29)	363	11.02	168	28
91,400	26	10.3	38	19.5	85	5.74	5.78	1.88	11.81	245	(2.54)	256	0.99	381	38
56,671	69	5.4	177	18.3	106	9.17	8.15	2.01	18.39	153	(13.60)	336	9.05	215	28
32,000	140	6.4	122	13.3	264	4.27	4.22	0.28‡	31.32	39	(31.94)	426	16.46	79	29
71,300	44	—		—		(18.03)**	1.53	1.36**	—		39.55	42	16.97	75	41
38,100	116	7.9	83	21.2	51	3.90	3.42	1.41	10.71	269	11.07	165	(1.75)	411	49
7,215	400	—		—		(4.68)	4.63	1.90	—		(22.85)	369	(0.14)	396	29
60,400	59	4.6	248	17.5	130	4.21	3.81[17]	1.59[17]	10.23	280	28.46	73	7.19	261	20
122,000†	15	5.1	202	13.3	261	3.75	4.38	0.77	17.15	139	4.72	204	10.87	171	34
76,500	39	5.7	159	21.1	52	3.86	3.40	0.61	20.26	97	(29.86)	415	16.69	76	36
85,000	31	2.5	387	15.9	180	4.67	4.12	2.22	7.72	323	39.18	43	2.96	351	49
10,300	336	—		—		N.A.	N.A.	N.A.	—		—		—		29
60,900	58	4.6	244	10.2	359	3.79	3.72	1.07	13.48	207	(21.98)	387	14.80	97	45
92,476	24	5.8	157	13.4	258	7.68	7.60	2.11	13.79	200	(41.48)	455	3.94	333	44
44,000	100	3.0	360	8.3	395	1.51	2.34	0.94	4.85	362	(14.71)	345	2.80	353	26
77,100	37	8.7	66	18.5	102	2.51	2.17	0.61	15.20	176	14.22	151	2.77	354	42
96,923	23	4.8	226	12.4	292	11.38	13.13	3.90	11.30	257	(34.61)	437	(3.11)	421	44
59,700	62	4.0	291	12.9	277	2.95	2.89	0.39	22.43	75	(13.54)	333	20.96	35	40
91,941	25	4.3	269	16.1	169	6.60	6.39	1.92	13.14	215	(5.82)	274	11.10	166	40
46,700†	95	4.0	293	16.1	173	2.55	2.12	1.03	9.49	294	22.32	110	2.75	356	43
63,000	56	3.3	335	14.2	229	1.62	1.51	0.50	12.47	229	21.13	113	3.55	340	20
54,600†	74	4.7	240	15.4	196	6.61	6.11	2.51	10.17	283	8.06	179	7.04	264	34
9,144	359	0.2	458	1.2	455	0.06	1.59	0.65**	(21.20)	414	(53.20)	465	5.75	287	29
81,000	35	2.5	392	11.6	313	2.25	3.58	0.42	18.28	125	(41.00)	454	19.62	47	41
36,000	122	10.5	34	16.4	162	10.08	5.97	1.22‡	23.51	67	(1.13)	242	5.77	286	26
44,400†	99	6.0	150	9.4	376	3.97	6.54	0.82	17.08	142	(8.01)	286	10.17	186	33
76,700	38	6.3	132	21.9	40	7.76	7.27	1.03	22.38	76	(33.84)	433	12.96	132	36
71,200	45	4.1	267	17.2	142	3.90	3.37	0.99	14.69	187	38.65	45	8.88	221	20
46,800†	93	1.6	422	7.4	406	3.77	4.26	2.66	3.55	373	22.72	106	7.90	241	34
50,245†	83	2.9	361	14.7	214	3.06	2.67	1.76	5.69	351	20.35	118	4.77	306	20
57,000	67	6.9	111	16.5	160	4.04	3.35	0.57	21.63	86	(36.58)	443	17.22	70	45
42,812	102	5.1	204	7.3	407	1.62	2.12‡	0.82	7.05	334	(11.21)	310	5.10	299	26
35,200†	125	3.6	315	12.1	302	5.45	4.79	2.00	10.54	271	16.55	143	5.94	283	20
69,600	46	10.3	39	30.9	9	18.49	7.68	1.92	25.42	57	3.39	212	12.44	140	40
40,891†	110	4.3	268	11.4	318	11.75	3.15	0.09	62.77	5	13.23	155	9.93	193	33
73,000	42	3.1	349	9.4	376	2.33	(1.84)**	2.07	1.19	386	25.95	84	(1.59)	409	30
38,000	117	5.0	213	17.7	124	4.57	4.14	1.09	15.41	171	18.62	126	14.19	106	20
44,555†	98	4.2	278	19.0	94	N.A.	N.A.	N.A.	—		—		—		21
83,714	33	2.6	379	8.6	390	4.62	9.22	1.53	11.69	247	(31.68)	424	4.03	330	36
55,620	72	3.2	343	10.9	340	6.65	6.02	3.16‡	45.17	13	20.17	119	6.33	277	20
49,267	85	12.0	21	30.1	11	3.18	2.84	1.01	12.15	235	36.54	49	5.79	285	42
32,976†	136	2.1	409	5.8	428	4.59	4.42	2.61	5.81	349	00.00	230	0.88	382	33
51,000	81	0.7	447	5.1	433	2.42	2.54	(2.43)‡	—		(25.41)	400	1.90	368	20
52,496	80	9.6	48	20.3	67	6.68	7.01	2.15	12.00	238	3.13	213	13.36	123	21
40,000	112	2.5	384	5.8	427	1.58	2.63	1.23	2.54	376	(13.35)	331	1.19	378	26
50,954	82	3.9	296	10.6	343	5.15	5.09	1.81	11.02	262	22.30	111	7.26	258	32
18,043	224	5.7	164	18.0	116	4.79	3.80	1.60	11.59	250	52.24	22	(0.32)	399	49
17,883	228	—		—		N.A.	N.A.	N.A.	—		—		—		29

[16]Name changed from Nabisco (1980 rank: 152) upon merger with Standard Brands (1980 rank: 128), July 6, 1981.

[17]Figures are for Nabisco.

[18]Figures are for fiscal year ending July 31, 1981.

[19]Figures are for fiscal year ending August 31, 1981.

[20]Figures include Ampex (1980 rank: 493), acquired January 15, 1981.

[21]Figures are for fiscal year ending May 31, 1981.

[22]Wholly owned by BAT Industries Ltd.

[23]Cooperatives provide only "net margin" figures, which are not comparable with the net-income figures in these listings.

[24]Figures include H.P. Hood (1980 rank: 452), acquired July 16, 1980.

THE 500 LARGEST INDUSTRIALS

RANK '81	RANK '80	COMPANY	SALES ($000)	ASSETS ($000)	ASSETS RANK	NET INCOME ($000)	NET INCOME RANK	STOCKHOLDERS' EQUITY ($000)	STOCKHOLDERS' EQUITY RANK
101	105	**Kerr-McGee** (Oklahoma City)	3,826,420	3,414,904	82	211,117	94	1,501,224	87
102	118	**Combustion Engineering** (Stamford, Conn.)	3,809,743	2,666,326	119	147,300	134	732,510	192
103	112	**Inland Steel** (Chicago)	3,754,941	2,891,055	104	57,255	266	1,309,171	104
104	107	**Celanese** (New York)	3,752,000	2,991,000	99	144,000	136	1,233,000	118
105	136	**Northwest Industries** (Chicago)	3,680,200¶	2,489,800	127	419,300	41	1,021,100	147
106	106	**American Cyanamid** (Wayne, N.J.)	3,649,073	3,065,025	95	197,054	101	1,528,565	85
107	139	**Archer-Daniels-Midland** (Decatur, Ill.)[6]	3,647,491	2,000,631	161	175,981	110	1,046,994	140
108	111	**McDermott** (New Orleans)[13]	3,599,643	3,899,980	70	106,697	175	1,044,847	141
109	103	**FMC** (Chicago)	3,581,960	2,738,862	115	139,526	138	1,297,886	107
110	120	**Hewlett-Packard** (Palo Alto, Calif.)[12]	3,578,000	2,758,000	112	312,000	62	1,920,000	65
111	133	**H.J. Heinz** (Pittsburgh)[25]	3,568,889	2,073,704	158	167,454	121	986,565	154
112	119	**Diamond Shamrock** (Dallas)	3,563,787	3,016,385	97	121,265	155	1,349,735	99
113	117	**Bristol-Myers** (New York)	3,496,700	2,488,500	128	305,800	64	1,564,500	83
114	101	**Reynolds Metals** (Richmond, Va.)	3,481,100	3,299,500	88	86,700	208	1,363,400	98
115	109	**Land O'Lakes** (Arden Hills, Minn.)	3,470,179	692,292	320	N.A.[23]		219,852	385
116	108	**NCR** (Dayton, Ohio)	3,432,701	3,386,534	84	208,234	97	1,853,351	69
117	161	**Tosco** (Los Angeles)	3,431,491	1,066,081	248	22,579	395	258,592	359
118	124	**Emerson Electric** (St. Louis)[9]	3,429,261	2,201,680	149	273,273	71	1,386,382	96
119	104	**Warner-Lambert** (Morris Plains, N.J.)	3,379,952	2,963,101	100	9,222	443	1,385,479	97
120	129	**Ingersoll-Rand** (Woodcliff Lake, N.J.)	3,377,564	2,678,075	117	193,338	103	1,283,158	114
121	113	**Carnation** (Los Angeles)	3,354,141	1,645,362	184	172,277	116	1,014,725	150
122	116	**PPG Industries** (Pittsburgh)	3,353,600	2,954,700	101	211,200	93	1,628,400	79
123	187	**Penn Central** (New York)[26]	3,348,800	3,394,900	83	168,700	120	1,309,300	103
124	102	**Textron** (Providence)	3,341,800	2,195,700	150	151,800	128	1,227,000	121
125	135	**Time Inc.** (New York)	3,337,406	2,754,759	113	148,821	133	1,222,718	123
126	121	**Motorola** (Schaumburg, Ill.)	3,335,900	2,399,399	133	174,990	111	1,288,012	108
127	50	**Esmark** (Chicago)[12]	3,319,809	1,743,316	180	93,769	198	609,871	211
128	137	**Burroughs** (Detroit)[27]	3,318,491	4,439,400	61	148,926	132	2,180,076	54
129	125	**Pillsbury** (Minneapolis)[22]	3,301,700	2,174,500	154	119,600	157	752,400	188
130	149	**Martin Marietta** (Bethesda, Md.)	3,294,087	2,545,870	125	200,072	100	1,199,977	126
131	148	**North American Philips** (New York)	3,273,753	1,854,088	173	103,974	179	732,194	193
132	134	**Burlington Industries** (Greensboro, N.C.)[9]	3,262,886	2,210,738	148	115,314	160	1,177,676	127
133	126	**Pfizer** (New York)	3,249,700	3,647,100	76	221,300	87	1,697,600	72
134	132	**Teledyne** (Los Angeles)	3,237,600	2,868,200	107	412,300	42	1,706,500	71
135	183	**Warner Communications** (New York)	3,237,153	2,673,641	118	226,493	84	1,150,735	130
136	114	**Kaiser Aluminum & Chemical** (Oakland, Calif.)	3,225,500	3,835,900	71	132,900	147	1,497,400	88
137	162	**Digital Equipment** (Maynard, Mass.)[6]	3,198,099	3,456,072	78	343,297	54	2,679,689	42
138	122	**B.F. Goodrich** (Akron, Ohio)	3,184,600	2,702,900	116	109,500**	170	1,091,600	135
139	115	**Eaton** (Cleveland)	3,165,319	2,332,857	136	82,368	217	1,015,524	149
140	123	**Crown Zellerbach** (San Francisco)	3,148,300	2,614,100	121	75,300	234	1,222,200	124
141	130	**Norton Simon** (New York)[6]	3,144,176	2,382,485	134	103,655	181	912,219	168
142	197	**Cooper Industries** (Houston)[28]	3,135,120	2,189,431	153	284,545	70	1,284,899	113
143	127	**Boise Cascade** (Boise, Idaho)	3,107,360	2,740,125	114	120,080	156	1,342,670	100
144	141	**Control Data** (Minneapolis)	3,101,300	2,825,900	109	170,600	118	1,577,600	81
145	142	**Merck** (Rahway, N.J.)	2,929,455	3,310,000	87	398,265	44	2,001,460	61
146	144	**Mead** (Dayton, Ohio)	2,899,700	2,193,300	151	106,900	174	888,800	170
147	150	**Kimberly-Clark** (Neenah, Wis.)	2,885,700	2,413,800	132	204,700	99	1,324,700	101
148	138	**Levi Strauss** (San Francisco)[29]	2,851,245	1,604,674	188	172,298	115	949,055	161
149	156	**Kidde** (Clifton, N.J.)	2,849,170	1,876,911	172	99,213	188	703,046	199
150	140	**Singer** (Stamford, Conn.)	2,833,600	1,573,200	194	38,400	321	445,300	270

¶Includes sales from discontinued operations of at least 10%, see explanation of "sales" on page 280.

N.A. Not available.

**Reflects an extraordinary credit of at least 10%, see the explanations of "net income" and "earnings per share" on page 280.

†Average for the year, see the reference to "employees" on page 280.

‡Reflects an extraordinary charge of at least 10%, see the explanations of "net income" and "earnings per share" on page 280.

[29]Figures are for fiscal year ending April 30, 1981.

EMPLOYEES		NET INCOME AS PERCENT OF				EARNINGS PER SHARE					TOTAL RETURN TO INVESTORS				
		SALES		STOCKHOLDERS' EQUITY					GROWTH RATE 1971-81		1981		1971-81 AVERAGE		INDUSTRY
NUMBER	RANK	%	RANK	%	RANK	'81($)	'80($)	'71($)	%	RANK	%	RANK	%	RANK	CODE
11,202	319	5.5	172	14.1	237	4.07	3.51	0.89	16.42	152	(2.91)	257	7.52	251	29
46,704	94	3.9	301	20.1	69	4.45	3.56	1.15	14.49	190	(17.32)	356	10.13	187	45
35,094†	128	1.5	425	4.4	440	2.69	1.38	2.44	0.98	387	(8.97)	295	3.67	339	33
29,500	150	3.8	305	11.7	311	9.01	8.20	(1.96)‡	—		8.60	177	4.09	327	28
41,100	109	11.4	28	41.1	5	14.20	5.03	1.78	23.08	72	94.69	4	20.67	38	33
41,841	105	5.4	179	12.9	278	4.11	3.32	1.95	7.74	322	(5.98)	275	3.94	334	28
7,018	405	4.8	229	16.8	152	2.55	1.93	0.29	24.28	62	(17.77)	359	22.21	27	20
59,000	63	3.0	358	10.2	360	2.08	1.77	0.25	23.60	66	(3.53)	261	20.47	40	34
38,940	115	3.9	298	10.8	348	4.15	4.26	1.45	11.09	261	(10.73)	307	5.54	290	45
64,000	54	8.7	64	16.3	168	2.55	2.24	0.23	27.20	47	(10.96)	308	13.18	130	38
41,700	106	4.7	237	17.0	148	7.25	6.24	1.69	15.68	167	26.07	83	11.17	164	20
13,545	282	3.4	330	9.0	384	1.94	3.66	0.58	12.83	221	(23.47)	392	14.96	95	29
35,700	123	8.7	63	19.5	82	4.58	4.08	1.23	14.05	196	8.99	172	9.25	209	42
34,200†	131	2.5	389	6.4	421	4.40	9.32	0.02‡	71.49	3	(25.11)	398	8.18	235	33
8,869	365	—		—		N.A.	N.A.	N.A.	—		—		—		20
65,000	52	6.1	141	11.2	327	7.72	9.51	0.06	62.53	6	(38.97)	450	6.66	273	44
3,170	474	0.7	450	8.7	367	1.02	2.15	0.03**	42.26	18	(48.62)	462	17.46	66	29
55,200†	73	8.0	80	19.7	77	4.26	3.72	1.19	13.60	205	29.31	69	4.23	321	36
45,000	97	0.3	455	0.7	456	0.12	2.41	1.41	(21.84)	415	17.23	137	(1.89)	412	42
47,370	92	5.7	161	15.1	204	9.71	8.08	3.81	9.81	289	(20.00)	373	4.39	318	45
21,869	197	5.1	200	17.0	147	4.67	4.15	1.37	13.05	216	12.59	159	2.91	352	20
36,600	120	6.3	133	13.0	274	6.27	6.34	1.53	15.15	178	(1.69)	246	8.23	234	28
42,196	104	5.0	212	12.9	279	4.18	1.81	(387.17)‡	—		7.84	180	(10.28)	445	29
49,000	87	4.5	249	12.4	290	4.06	2.30	2.06	7.02	335	(4.85)	270	4.23	323	34
25,000	176	4.5	255	12.2	301	2.43	2.51	0.80	11.75	246	25.19	96	14.43	101	27
76,300	40	5.2	191	13.6	251	5.56	5.96	1.19	16.67	146	(18.70)	368	4.89	303	36
30,000	146	2.8	370	15.4	198	7.04	17.52	1.70	15.27	175	23.98	101	13.04	131	20
66,900	48	4.5	254	6.8	414	3.58	1.99	2.02	5.89	347	(32.06)	428	(5.91)	435	44
60,000	60	3.6	316	15.9	179	5.95	5.22	0.89‡	20.92	89	11.16	164	8.77	222	20
41,200	108	6.1	140	16.7	156	5.39	5.03	1.61**	12.84	220	(21.93)	386	17.11	71	41
49,021	86	3.2	345	14.2	230	7.67	5.70	0.90‡	23.90	63	6.74	190	9.45	205	36
64,000	53	3.5	319	9.8	371	4.10	2.90	1.52	10.43	273	43.85	32	3.11	349	22
41,500	107	6.8	113	13.0	267	2.95	3.48	1.38	7.89	319	2.52	216	5.26	296	42
48,200	89	12.7	18	24.2	29	19.96	15.23	0.61	41.74	20	(3.82)	263	31.60	1	45
17,500†	232	7.0	105	19.7	79	3.57	2.38	0.60	19.52	108	43.35	34	22.74	22	36
26,250†	169	4.1	284	8.9	386	3.08	5.91	0.43‡	21.76	85	(26.81)	405	9.41	206	33
63,000	57	10.7	31	12.8	281	6.70	5.45	0.35	34.34	30	(8.95)	294	12.92	133	44
33,705	134	3.4	326	10.0	365	5.55**	3.57	0.12‡	46.73	12	(4.27)	265	3.69	338	30
48,933	88	2.6	378	8.1	396	3.01	4.35	2.04	3.97	370	17.87	132	7.36	256	40
29,407	155	2.4	396	6.2	422	2.47	3.46	1.27	6.88	336	(35.47)	440	3.55	341	26
40,000	111	3.3	340	11.4	323	2.26	2.57	1.29	5.77	350	30.10	63	0.51	385	20
39,000	114	9.1	58	22.1	38	6.02	4.26	0.11‡	49.22	11	(2.46)	254	27.76	7	45
29,600	148	3.9	302	8.9	385	4.50	5.58	(2.74)‡	—		5.83	193	9.76	200	26
52,647	79	5.5	174	10.8	344	4.48	4.23	1.19	14.16	194	1.20	223	4.84	305	44
32,400	137	13.6	14	19.9	73	5.36	5.54	1.74	11.91	242	3.07	214	5.50	292	42
23,800	182	3.7	313	12.0	304	4.00	4.84	0.61	20.69	91	(4.13)	264	11.50	159	26
31,398	144	7.1	101	15.5	195	9.12	7.85	(0.46)‡	—		30.06	64	14.19	107	26
48,000	90	6.0	144	18.2	111	4.15	5.36	0.46	24.60	61	(33.05)	431	11.67	157	23
50,000	84	3.5	322	14.1	234	4.87	4.30	1.23	14.75	186	7.59	184	8.36	230	45
66,000	50	1.4	429	8.5	389	1.93	1.92	3.92	(6.84)	406	16.46	144	(11.83)	449	26

*Figures include GK Technologies (1980 rank: 275), acquired May 14, 1981.

**Figures include Memorex (1980 rank: 358), acquired December 31, 1981.

***Figures include Crouse-Hinds (1980 rank: 387), acquired April 29, 1981.

†Figures are for fiscal year ending November 30, 1981.

THE 500 LARGEST INDUSTRIALS

RANK '81	RANK '80	COMPANY	SALES ($000)	ASSETS ($000)	ASSETS RANK	NET INCOME ($000)	NET INCOME RANK	STOCKHOLDERS' EQUITY ($000)	STOCKHOLDERS' EQUITY RANK
151	143	**St. Regis Paper** (New York)	2,818,798	2,788,292	110	179,218	108	1,453,554	91
152	131	**AMAX** (Greenwich, Conn.)	2,799,400	5,486,600	47	230,800	81	2,555,900	44
153	153	**Campbell Soup** (Camden, N.J.)[18]	2,797,663	1,722,876	181	129,717	149	1,000,510	153
154	154	**Eli Lilly** (Indianapolis)	2,773,205	2,902,262	103	374,478	48	1,886,260	68
155	146	**Borg-Warner** (Chicago)	2,761,200	2,191,200	152	172,100	117	1,235,900	116
156	177	**NL Industries** (New York)	2,738,292‡	2,298,470	142	315,983	60	1,163,804	128
157	158	**Hercules** (Wilmington, Del.)	2,718,366	1,997,144	162	136,481	141	1,051,357	139
158	157	**Dana** (Toledo)	2,711,080	1,967,379	164	115,602	159	1,003,284	152
159	159	**Pennzoil** (Houston)	2,681,751	2,998,565	98	221,642	86	1,102,978	134
160	151	**Avon Products** (New York)	2,613,800	1,567,800	195	219,900	88	933,000	166
161	160	**Quaker Oats** (Chicago)[6]	2,599,500	1,454,100	203	105,200	177	612,600	210
162	155	**American Motors** (Southfield, Mich.)	2,588,923	1,100,720	241	(136,563)	483	293,848	338
163	171	**General Tire & Rubber** (Akron, Ohio)[29]	2,524,309‡	1,844,431	174	110,854	164	1,030,489	143
164	178	**American Petrofina** (Dallas)	2,504,038	1,146,081	231	74,140	237	542,665	234
165	145	**American Standard** (New York)	2,471,346	1,574,285	193	111,490	163	658,159	204
166	170	**Whirlpool** (Benton Harbor, Mich.)	2,450,088	1,133,972	235	125,560	151	791,829	181
167	188	**Murphy Oil** (El Dorado, Ark.)	2,446,823	2,776,881	111	163,006	122	795,476	179
168	167	**McGraw-Edison** (Rolling Meadows, Ill.)	2,428,536	1,761,406	177	84,110	212	584,634	217
169	165	**Owens-Corning Fiberglas** (Toledo)	2,375,059	1,601,929	189	49,849	290	773,587	183
170	186	**Interco** (St. Louis)[11]	2,368,456	1,469,137	201	124,330	152	812,560	176
171	172	**Revlon** (New York)	2,365,938	2,316,642	138	174,821	112	938,733	165
172	185	**Abbott Laboratories** (North Chicago, Ill.)	2,342,524	2,355,613	135	247,283	78	1,152,050	129
173	163	**Gillette** (Boston)	2,334,397	1,759,016	179	124,291	153	719,969	194
174	174	**Ogden** (New York)	2,324,289	1,646,216	183	65,079	250	453,225	267
175	176	**Kellogg** (Battle Creek, Mich.)	2,321,304	1,279,088	214	205,416	98	810,267	177
176	179	**Scott Paper** (Philadelphia)	2,309,444	2,298,683	141	133,340	145	1,287,612	109
177	164	**Uniroyal** (Middlebury, Conn.)	2,260,100	1,458,230	202	51,640**	282	521,402	236
178	175	**Colt Industries** (New York)	2,242,552	1,490,316	199	109,550	168	735,715	191
179	173	**Gould** (Rolling Meadows, Ill.)	2,239,700‡	1,597,800	190	95,700	194	809,600	178
180	•	**Engelhard** (Edison, N.J.)	2,191,792	705,280	315	66,392	248	375,704	301
181	166	**Manville** (Denver)[30]	2,186,005	2,297,814	143	60,320	260	902,484	169
182	204	**MAPCO** (Tulsa)	2,182,463	1,612,754	187	96,890	192	558,295	224
183	180	**Fruehauf** (Detroit)	2,175,119	1,556,765	196	21,357	399	518,980	238
184	184	**White Consolidated Industries** (Cleveland)	2,172,772	1,268,300	215	62,032	256	476,924	256
185	224	**Baker International** (Orange, Calif.)[9]	2,140,016	1,808,545	175	224,989	85	945,782	163
186	194	**Times Mirror** (Los Angles)	2,130,756	1,917,212	169	150,331	130	915,203	167
187	233	**Superior Oil** (Houston)	2,057,419	4,520,809	60	361,291	51	2,151,436	56
188	182	**Allis-Chalmers** (West Allis, Wis.)	2,041,844	1,594,247	191	(23,841)	475	685,850	201
189	191	**J.P. Stevens** (New York)[12]	2,031,335	1,142,590	234	(22,874)	472	485,617	251
190	190	**Koppers** (Pittsburgh)	2,018,562	1,328,175	210	51,642	281	644,052	207
191	189	**Jim Walter** (Tampa, Fla.)[19]	2,017,125	2,558,543	124	23,394**	391	711,149	196
192	218	**A.E. Staley Manufacturing** (Decatur, Ill.)[9]	2,006,196	859,467	286	105,821	176	477,745	254
193	195	**Olin** (Stamford, Conn.)	2,001,346	1,618,034	185	92,836	200	793,187	180
194	219	**Northrop** (Los Angeles)	1,990,700	1,257,400	220	47,900	293	507,000	240
195	203	**SmithKline** (Philadelphia)	1,985,341	1,873,452	170	370,000	49	1,225,804	122
196	201	**International Minerals & Chemical** (Northbrook, Ill.)[6]	1,984,900	1,975,200	163	153,800	127	975,300	156
197	257	**Amstar** (New York)[6]	1,980,375	671,862	326	73,440	238	363,950	303
198	181	**Williams Companies** (Tulsa)	1,976,336	2,445,877	130	109,540	169	1,027,245	146
199	207	**Central Soya** (Fort Wayne, Ind.)[19]	1,975,042	586,890	343	19,901	406	305,847	328
200	217	**Cummins Engine** (Columbus, Ind.)	1,962,461	1,415,797	206	115,211	161	547,795	231

•Not among the 500 or the Second 500 in 1980.

‡Includes sales from discontinued operations of at least 10%; see explanation of "sales" on page 280.

**Reflects an extraordinary credit of at least 10%; see the explanations of "net income" and "earnings per share" on page 280.

†Average for the year; see the reference to "employees" on page 280.

§Reflects an extraordinary charge of at least 10%; see the explanations of "net income" and "earnings per share" on page 280.

[30]Name changed from Johns-Manville October 29, 1981.

EMPLOYEES		NET INCOME AS PERCENT OF				EARNINGS PER SHARE					TOTAL RETURN TO INVESTORS				
		SALES		STOCKHOLDERS' EQUITY					GROWTH RATE 1971-81		1981		1971-81 AVERAGE		INDUSTRY
NUMBER	RANK	%	RANK	%	RANK	'81($)	'80($)	'71($)	%	RANK	%	RANK	%	RANK	CODE
27,800	159	6.4	128	12.3	296	5.19	5.16	0.85‡	19.83	104	(2.46)	253	7.96	240	26
19,927	213	8.2	70	9.0	383	3.31	7.48	1.36	9.30	298	20.36	117	14.28	104	33
39,965	113	4.6	242	13.0	275	4.00	3.69	2.00	7.13	326	(0.87)	239	4.21	324	20
28,600	153	13.5	16	19.9	75	4.93	4.82	1.42	13.25	214	(8.54)	291	2.45	359	42
55,700†	71	6.2	134	13.9	242	4.00	2.93	1.23	12.52	225	29.96	66	12.19	141	45
23,000	186	11.6	25	27.2	16	4.60	2.47	0.07‡	52.27	10	6.28	191	25.31	14	28
22,777	191	5.0	214	13.0	273	3.09	2.60	1.39	8.32	314	25.70	90	2.76	355	28
36,200	126	4.3	278	11.5	317	3.25	2.78	0.98	12.74	222	48.80	27	11.31	182	40
10,000	344	8.3	66	20.1	70	4.23	5.90	0.68‡	20.06	100	(0.36)	236	17.82	83	29
33,700	135	8.4	67	23.8	32	3.66	4.01	1.85	6.83	337	(3.31)	259	(6.54)	436	43
30,900	145	4.0	288	17.2	141	5.01	4.55	1.25‡	14.69	184	22.63	107	4.54	314	20
21,603	198	—		—		(2.44)	(8.00)	0.40**	—		(38.66)	449	(9.26)	444	40
36,000	121	4.4	262	10.8	347	4.51	1.65	2.07	8.10	317	25.07	97	6.22	280	30
2,750	479	3.0	359	13.7	249	6.86	9.89	1.71	14.94	182	(0.08)	232	15.74	87	29
42,700	103	4.5	252	16.9	150	4.07	5.69	(3.57)‡	—		(4.48)	266	20.60	39	37
19,312	218	5.1	201	15.9	182	3.48	2.81	1.41	9.39	296	40.14	39	2.10	366	36
4,814	451	6.7	117	20.5	61	4.39	4.03	0.34	29.15	44	(37.00)	444	20.97	34	29
34,000	133	3.5	325	14.4	221	5.11	3.12	1.90‡	10.40	275	5.01	201	6.91	287	38
23,800†	183	2.1	410	6.4	418	1.63	1.76	0.86	6.60	342	(11.40)	313	1.34	374	32
85,000	70	5.2	190	15.3	201	7.81	7.35	3.42	8.33	313	4.88	202	4.41	317	23
35,200	127	7.4	92	18.6	99	4.10	4.87	1.33	11.92	241	(32.20)	430	1.27	376	43
31,502	142	10.6	33	21.5	48	2.01	1.73	0.21	25.34	58	(1.98)	250	15.21	94	42
32,300	139	5.3	185	17.3	137	4.11	4.11	2.13	6.79	338	27.68	76	3.51	342	34
31,566	141	2.8	371	14.4	226	4.85	4.58	0.84	19.19	111	(11.33)	311	15.95	83	37
20,260†	208	8.8	61	25.4	22	2.69	2.42	0.76	13.47	208	18.15	130	10.34	183	20
20,300	207	5.8	156	10.4	357	3.22	3.43	0.76	15.53	166	(18.08)	362	4.73	309	26
24,611	178	2.3	404	9.9	368	1.62**	(0.30)	1.42	1.33	383	17.10	139	(4.74)	431	30
28,000†	156	4.9	225	14.9	210	4.01	3.09	0.42	25.31	59	30.56	62	23.78	18	33
28,776	151	4.3	273	11.8	307	2.68	2.10	1.29	7.59	324	(4.53)	267	6.90	268	36
8,600†	370	3.0	352	17.7	128	2.48	N.A.	N.A.	—		—		—		33
27,000	163	2.8	372	6.7	415	1.53	2.47	2.35	(4.20)	402	(34.08)	434	(3.77)	425	32
6,835	409	4.4	256	17.4	136	3.51	4.46	0.57	19.93	101	(24.29)	395	16.56	77	10
27,000	162	1.0	442	4.1	442	1.74	2.63	2.21	(2.36)	398	(15.47)	349	1.10	380	40
25,568	174	2.9	367	13.0	271	4.34	3.94	1.55	10.84	264	17.84	134	9.26	206	36
25,600	173	10.5	36	23.8	30	3.36	2.11	0.24	30.20	41	(20.72)	377	22.49	25	45
27,049	161	7.1	103	16.4	161	4.40	4.06	1.04	15.52	169	14.38	150	9.02	216	27
6,795	410	17.8	7	18.8	154	2.84	2.64	0.04	53.15	9	(6.50)	278	18.02	59	10
26,775†	'66	—		—		(2.66)	3.60	0.33‡	—		(51.55)	463	6.34	276	45
37,800	118	—		—		(1.59)	1.43	(0.04)	—		20.71	115	10.90	174	22
20,113†	211	2.6	382	8.0	397	1.58	2.02	0.82	6.78	339	(26.40)	403	11.85	152	28
23,800	184	1.2	436	3.3	448	1.34**	4.85**	1.66	(3.33)	401	(29.82)	414	(2.05)	414	26
4,200	483	8.3	168	22.2	37	4.75	2.51	0.34	30.17	42	(14.63)	343	20.78	37	20
20,300	209	4.5	241	11.7	310	3.88	1.41	1.02	14.29	192	25.75	88	16.30	81	28
31,400	143	2.4	395	9.4	375	3.31	5.04	0.98	12.94	218	(10.46)	305	27.21	6	41
22,914	189	18.6	5	30.2	10	5.55	4.65	0.77	21.84	84	(12.82)	328	20.18	43	42
10,600	328	7.7	85	15.8	186	5.63	5.38	0.48	27.65	45	(48.71)	461	19.33	60	28
8,089†	383	3.7	310	20.2	68	8.04	3.32	2.48	12.48	228	16.92	142	11.23	163	20
6,258	425	5.5	167	10.7	350	3.67	5.07	1.72	7.87	320	(39.52)	462	5.51	291	28
9,835	347	1.0	440	6.5	417	1.31	2.38	1.05	2.24	378	(17.82)	381	4.53	315	20
22,788	190	5.9	153	21.0	53	13.24	(1.31)	3.26	15.04	180	23.46	104	0.25	388	45

THE 500 LARGEST INDUSTRIALS

RANK '81	RANK '80	COMPANY	SALES ($000)	ASSETS ($000)	ASSETS RANK	NET INCOME ($000)	NET INCOME RANK	STOCKHOLDERS' EQUITY ($000)	STOCKHOLDERS' EQUITY RANK
201	192	**SCM** (New York)[6]	1,938,446	1,077,480	244	56,511	269	489,038	249
202	213	**Anderson Clayton** (Houston)[3]	1,929,647	895,384	274	51,399	283	503,503	242
203	211	**Grumman** (Bethpage, N.Y.)	1,915,529	1,073,320	245	20,486	403	271,798	352
204	229	**Allegheny International** (Pittsburgh)[31]	1,907,809	2,429,414	131	81,000	220	451,553	268
205	206	**Upjohn** (Kalamazoo, Mich.)	1,898,334	1,940,485	167	181,764	105	965,267	159
206	212	**Rohm & Haas** (Philadelphia)	1,884,664	1,348,627	208	93,085	199	759,911	184
207	196	**Squibb** (New York)	1,846,414	1,950,360	165	104,815	178	1,029,625	144
208	198	**Mormon Group** (Chicago)	1,819,235	1,188,495	226	83,390	213	454,155	266
209	255	**Wheelabrator-Frye** (Hampton, N.H.)	1,812,758¶	1,759,637	178	91,350	202	738,915	190
210	209	**Schering-Plough** (Kenilworth, N.J.)	1,808,800	2,285,500	144	179,300	107	1,285,800	110
211	214	**Sterling Drug** (New York)	1,792,925	1,264,980	216	130,303	148	826,112	173
212	193	**Gold Kist** (Atlanta)[6]	1,781,697	559,360	349	N.A.[29]		114,332	461
212	272	**Hughes Tool** (Houston)	1,759,105	2,044,933	159	255,208	76	1,149,176	131
214	208	**Ethyl** (Richmond, Va.)	1,757,195	1,261,954	218	90,891	203	718,567	195
215	200	**Emhart** (Farmington, Conn.)	1,747,100	1,068,200	247	75,500	233	460,900	263
216	216	**PACCAR** (Bellevue, Wash.)	1,735,426	848,014	287	85,113	210	601,589	214
217	215	**Stauffer Chemical** (Westport, Conn.)	1,726,236	2,033,947	160	149,924	131	1,029,118	145
218	205	**National Distillers & Chemical** (New York)	1,703,100*	1,706,200	182	136,700	140	1,007,200	151
219	230	**General Signal** (Stamford, Conn.)	1,702,455	1,222,840	223	117,132	158	753,152	187
220	•	**Foster Wheeler** (Livingston, N.J.)	1,674,074	959,286	264	64,302	253	330,597	318
221	246	**Whittaker** (Los Angeles)[12]	1,671,837	867,095	282	69,328	241	345,459	310
222	222	**Union Camp** (Wayne, N.J.)	1,665,888	1,779,728	176	168,948	119	1,087,356	137
223	232	**Cabot** (Boston)[6]	1,622,755	1,258,904	219	110,167	165	606,401	213
224	226	**Crane** (New York)	1,611,342	962,663	263	53,811	278	415,747	281
225	•	**American Hoechst** (Somerville, N.J.)[32]	1,609,000	1,228,000	222	24,000	384	N.A.	
226	227	**Corning Glass Works** (Corning, N.Y.)	1,598,500	1,613,400	186	97,400	191	965,400	158
227	239	**Heublein** (Farmington, Conn.)[6]	1,591,408*	1,120,939	238	88,379	205	551,731	230
228	242	**Air Products & Chemicals** (Allentown, Pa.)[9]	1,570,115	1,876,987	171	126,039	150	774,135	182
229	254	**Harris** (Melbourne, Fla.)[6]	1,551,514	1,313,804	211	103,958	180	555,997	226
230	243	**Westvaco** (New York)[12]	1,550,529	1,262,620	217	100,791	186	701,820	200
231	264	**Sherwin-Williams** (Cleveland)	1,536,807	864,438	285	31,385	339	305,020	330
232	•	**Natomas** (San Francisco)	1,535,266	2,611,475	122	232,527	80	1,125,741	133
233	223	**National Can** (Chicago)	1,533,960	771,172	304	24,678	382	315,868	323
234	199	**Asarco** (New York)	1,531,506	2,092,813	157	50,038	288	1,018,783	148
235	241	**Lear Siegler** (Santa Monica, Calif.)[6]	1,530,699	864,641	284	76,067	230	410,934	283
236	247	**Chesebrough-Pond's** (Greenwich, Conn.)	1,529,674	1,059,433	249	114,822	162	574,404	220
237	244	**Sunbeam** (Chicago)[13]	1,518,703	953,862	266	47,502	295	424,306	278
238	220	**Joseph E. Seagram & Sons** (New York)[16,33]	1,506,532*	5,397,353	49	1,514,397**	11	2,548,661	45
239	248	**Baxter Travenol Laboratories** (Deerfield, Ill.)	1,503,890	1,590,743	192	150,581	129	978,325	155
240	249	**Great Northern Nekoosa** (Stamford, Conn.)	1,493,000	1,307,600	213	95,000	197	755,100	185
241	234	**U.S. Gypsum** (Chicago)	1,491,172	1,145,195	232	74,171	236	709,288	197
242	262	**Crown Central Petroleum** (Baltimore)	1,487,299	542,483	356	3,362	456	191,326	411
243	240	**Evans Products** (Portland, Ore.)	1,471,046	943,436	260	17,630	413	291,557	341
244	251	**Hershey Foods** (Hershey, Pa.)	1,451,151	606,800	296	80,362	222	469,664	258
245	225	**AMF** (White Plains, N.Y.)	1,443,156	951,087	268	41,981	308	454,827	265
246	237	**Phelps Dodge** (New York)	1,438,555	2,144,394	155	69,321**	242	1,089,003	136
247	253	**Geo. A. Hormel** (Austin, Minn.)[12]	1,433,966	425,065	403	27,283	366	226,741	381
248	238	**Black & Decker Manufacturing** (Towson, Md.)[6]	1,431,001	1,164,772	230	65,662	249	607,981	212
249	245	**Blue Bell** (Greensboro, N.C.)[6]	1,427,164	818,906	293	46,676	297	429,276	274
250	250	**Timken** (Canton, Ohio)	1,427,158	1,101,431	240	101,115	184	622,570	175

•Not among the 500 or the Second 500 in 1980.

¶Includes sales from discontinued operations of at least 10%; see explanation of "sales" on page 280.

N.A. Not available.

*Does not include excise taxes; see the explanation of "sales" on page 280.

**Reflects an extraordinary credit of at least 10%; see the explanations of "net income" and "earnings per share" on page 280.

†Average for the year; see the reference to "employees" on page 280.

‡Reflects an extraordinary charge of at least 10%; see the explanations of "net income" and "earnings per share" on page 280.

††Name changed from Allegheny Ludlum Industries April 24, 1981.

†††Wholly owned by Seshot AG.

††††Wholly owned by Seagram.

EMPLOYEES NUMBER	EMPLOYEES RANK	NET INCOME AS PERCENT OF SALES %	SALES RANK	NET INCOME AS PERCENT OF STOCKHOLDERS' EQUITY %	STOCKHOLDERS' EQUITY RANK	EARNINGS PER SHARE '81($)	EARNINGS PER SHARE '80($)	EARNINGS PER SHARE '71($)	EARNINGS PER SHARE GROWTH RATE 1971-81 %	EARNINGS PER SHARE GROWTH RATE 1971-81 RANK	TOTAL RETURN TO INVESTORS 1981 %	TOTAL RETURN TO INVESTORS 1981 RANK	TOTAL RETURN TO INVESTORS 1971-81 AVERAGE %	TOTAL RETURN TO INVESTORS 1971-81 AVERAGE RANK	INDUSTRY CODE
27,600	160	2.9	363	11.6	315	5.80	5.55	(0.24)‡	—		(0.95)	240	6.77	271	28
15,800†	256	2.7	374	10.2	361	4.09	4.00	0.88‡	16.61	150	35.51	52	13.74	114	20
28,600	152	1.1	439	7.5	404	1.45	2.35	(2.35)	—		3.66	210	11.89	151	41
52,742	78	4.2	277	17.9	129	7.48	4.11	(0.64)	—		(19.00)	369	16.21	82	36
21,410	201	9.6	47	18.8	95	6.04	5.71	1.35	16.16	156	(17.41)	357	6.56	274	42
13,456	285	4.9	220	12.2	298	7.21	7.26	2.31	12.06	237	37.06	48	4.07	328	28
23,000	187	5.7	163	10.2	362	2.10	2.65	1.44	3.85	371	15.14	148	0.08	392	42
17,000	241	4.6	246	18.4	105	N.A.	N.A.	N.A.	—		—		—		33
23,000	188	5.0	211	12.4	291	4.78	4.31	0.21‡	36.69	25	(13.10)	330	11.09	167	45
27,000	164	9.9	45	13.9	241	3.31	4.45	1.11	11.56	252	(26.77)	404	(1.45)	407	42
25,465	175	7.3	95	15.8	186	2.15	2.04	1.08	7.13	331	2.09	219	(0.10)	395	42
8,750†	368	—		—		N.A.	N.A.	N.A.	—		—		—		20
19,300	219	14.5	18	22.2	36	4.60	2.64	N.A.	—		(15.61)	350	—		45
14,500	272	5.2	196	12.6	285	4.56	4.49	1.52	11.61	248	(7.82)	284	11.35	161	28
32,349	138	4.3	271	16.4	193	6.06	5.47	1.92	12.18	233	17.02	141	10.67	178	45
10,529	331	4.9	223	14.1	232	9.39	8.94	2.68	13.36	213	18.73	125	13.63	118	40
12,233	303	8.7	66	14.6	217	3.41	3.11	0.62	18.59	121	(0.36)	237	13.32	124	28
12,000	307	6.0	76	13.6	253	3.97	2.96	1.10	13.69	203	(2.07)	251	12.09	144	28
26,621	167	6.9	108	15.6	191	4.23	4.01	1.01	15.40	172	(10.38)	304	10.61	177	38
17,000†	238	3.8	304	19.5	87	1.87	1.74	0.23	23.31	70	(38.63)	448	21.56	30	34
17,000	240	4.1	282	20.1	71	4.40	3.90	0.42‡	26.48	53	18.32	127	13.72	116	34
14,991	265	10.1	41	15.5	192	6.95	6.80	1.15	19.71	106	4.6	207	10.93	169	26
7,700	390	6.8	114	18.2	110	3.50	4.66	0.54	20.56	94	(16.28)	351	17.41	68	33
15,457	259	3.3	336	12.9	276	5.27	4.12	0.89	19.47	109	(15.21)	348	19.37	49	33
9,291	356	1.5	427	—		N.A.	N.A.	N.A.	—		—		—		28
29,900	147	6.1	139	10.1	364	5.32	6.26	1.93‡	10.67	270	(10.08)	301	(0.65)	402	32
28,500	154	5.6	166	16.0	176	4.09	3.62	1.65	9.50	232	26.22	82	(0.72)	403	49
16,200	249	8.0	75	16.3	167	4.42	4.07	0.60	22.10	81	(7.13)	280	13.52	119	28
25,800	172	6.7	116	18.7	98	3.37	2.63	0.59	19.04	114	(19.49)	371	15.57	91	36
15,040	264	6.5	121	14.4	225	3.95	3.47	0.16‡	37.80	23	5.42	197	14.79	98	26
23,567	185	2.0	412	10.3	358	3.07	2.44	1.24	9.49	283	29.44	74	3.42	346	28
4,974	447	15.1	8	20.7	59	4.29	4.02	0.03‡	64.26	4	(31.43)	421	14.29	103	10
11,978†	308	1.6	420	7.8	401	2.38	5.48	1.69	3.48	374	(1.24)	243	6.72	272	34
12,500†	295	3.3	342	4.9	436	1.54	8.02	1.72	(1.10)	392	(37.23)	446	8.32	231	33
23,985	181	6.0	217	18.5	101	4.71	4.23	0.06	54.70	8	(24.33)	396	17.27	69	36
21,327	202	7.5	91	20.0	72	3.52	3.10	0.97	13.76	201	25.40	93	4.76	307	43
28,000	157	3.1	346	11.2	328	3.15	3.30	1.55	7.35	327	74.80	9	5.18	297	36
11,000	320	100.5	1	59.4	2	N.A.	N.A.	N.A.	—		—		—		49
29,559	149	10.0	43	15.4	197	2.15	1.86	0.33	20.61	92	28.10	75	7.21	260	42
12,100†	304	6.4	127	12.6	287	5.86	6.16	1.06	18.63	117	(0.70)	238	10.86	172	26
17,800†	229	5.0	216	10.5	353	4.49	5.78	1.26	13.55	206	8.79	174	8.10	237	32
1,656	488	0.2	456	1.8	454	0.34	2.66	0.15	8.53	309	(45.56)	458	12.49	139	29
16,400	246	1.2	434	6.0	424	1.03	2.96	1.18	(1.35)	394	(6.24)	276	2.18	365	37
12,450	298	5.5	159	17.1	145	5.61	4.38	1.55	13.73	202	50.61	17	8.59	227	20
21,320	203	2.9	364	9.2	381	1.84	2.78	2.37	(2.50)	399	31.92	58	0.85	383	47
14,626	269	4.8	230	6.4	420	3.12**	4.20	3.69	(1.66)	396	(6.38)	277	4.10	326	33
7,796	388	1.9	418	12.0	303	2.84	3.41	1.75	4.96	309	24.70	96	9.85	196	20
18,900	222	4.6	245	10.8	345	1.96	2.14	0.61	9.84	288	(13.55)	335	(2.71)	419	45
34,000	132	3.3	341	10.9	342	3.70	5.40	1.21	11.83	244	4.06	208	7.11	262	23
20,920	204	7.1	102	12.3	297	9.01	8.26	3.58	9.67	291	12.66	197	9.76	190	45

THE 500 LARGEST INDUSTRIALS

RANK '81	RANK '80	COMPANY	SALES ($000)	ASSETS ($000)	ASSETS RANK	NET INCOME ($000)	NET INCOME RANK	STOCKHOLDERS' EQUITY ($000)	STOCKHOLDERS' EQUITY RANK
231	236	Polaroid (Cambridge, Mass.)	1,419,600	1,434,700	205	31,100	342	988,200	160
232	265	Pitney Bowes (Stamford, Conn.)	1,414,414	1,214,724	224	66,836	240	803,469	243
253	231	Chromalloy American (St. Louis)	1,407,851¶	987,333	259	13,871	428	394,051	289
254	278	Hammermill Paper (Erie, Pa.)	1,398,694	842,347	289	46,696	269	360,219	307
255	340	ConAgra (Omaha)[21]	1,376,806	500,213	371	27,071	369	123,306	456
256	282	Armstrong World Industries (Lancaster, Pa.)	1,376,290	938,880	271	47,078	266	601,823	218
257	235	Crown Cork & Seal (Philadelphia)	1,373,866	862,642	279	64,807	251	566,657	222
258	270	Gannett (Rochester, N.Y.)	1,367,171	1,448,108	204	172,508	114	836,378	172
259	226	Clark Equipment (Buchanan, Mich.)	1,359,663	1,036,186	250	29,940	349	614,008	206
260	273	Brunswick (Skokie, Ill.)	1,344,600¶	1,038,346	251	66,787	247	496,188	248
261	259	Diamond International (New York)	1,341,450	931,969	272	31,780	338	530,804	235
262	328	Fairchild Industries (Germantown, Md.)	1,338,906	902,440	273	64,318	262	227,319	379
263	269	Brown Group (St. Louis)[12]	1,337,779	591,342	342	55,120	272	336,944	314
264	260	Norton (Worcester, Mass.)	1,334,626	1,018,906	254	66,049	196	564,636	229
265	•	Farmers Unira Central Exchange (St. Paul)[9]	1,325,704	616,864	335	N.A.[23]		295,909	336
266	283	Avnet (New York)[9]	1,316,224	639,764	331	60,008	248	427,481	279
267	279	Witco Chemical (New York)	1,291,878	725,360	309	38,580	318	296,152	335
268	271	Richardson-Vicks (Wilton, Conn.)[5,54]	1,291,400¶	763,300	306	79,300	224	466,400	264
269	277	Zenith Radio (Glenview, Ill.)	1,275,200	743,200	308	15,600	421	297,400	333
270	283	Gemshell Taggart (Dallas)	1,267,514	614,763	366	41,664	309	229,018	383
271	284	R.R. Donnelley & Sons (Chicago)	1,243,859	865,797	283	79,016	225	560,021	223
272	285	Knight-Ridder Newspapers (Miami)	1,237,093	964,736	260	100,363	187	679,351	202
273	298	Louisiana Land & Exploration (New Orleans)	1,236,200	1,549,300	197	145,200	135	822,800	174
274	281	AMP (Harrisburg, Pa.)	1,234,295	1,025,411	253	134,770	143	660,510	203
275	260	Libbey-Owens-Ford (Toledo)	1,226,514	892,966	277	11,834	435	490,899	246
276	266	West Point-Pepperell (West Point, Ga.)[10]	1,221,533	623,413	334	41,093	312	361,829	304
277	356	Smith International (Newport Beach, Calif.)	1,194,159	1,034,770	252	133,116	146	612,965	209
278	304	GATX (Chicago)	1,190,699	2,540,166	105	66,649	243	555,706	228
279	293	Akzona (Asheville, N.C.)	1,187,583	836,090	291	11,596	436	320,033	321
280	276	Pennwalt (Philadelphia)	1,182,129¶	774,658	303	41,595	310	366,001	295
281	295	Lowe's Brothers (New York)[36]	1,173,100	471,100	382	(11,500)	468	196,900	404
282	299	Alco [illegible]vale, N.J.)[5,37]	1,166,570	1,144,612	233	62,142	256	647,339	206
283	•	Mid-America Dairymen (Springfield, Mo.)	1,164,906	245,863	480	N.A.[23]		85,006	471
284	312	Alumax (San Mateo, Calif.)	1,163,836	1,131,832	237	110,116	166	586,720	216
285	262	U.S. Industries (Stamford, Conn.)	1,161,009¶	686,837	322	(62,671)	480	426,187	277
286	291	Hersco (Wormleysburg, Pa.)	1,158,354	701,799	317	61,534	257	392,179	292
287	307	National Semiconductor (Santa Clara, Calif.)[31]	1,157,146	753,742	307	52,426	278	333,357	316
288	287	Wheeling-Pittsburgh Steel (Pittsburgh)	1,151,112	1,119,485	239	60,059	261	467,997	259
289	302	Square D (Palatine, Ill.)	1,114,247	811,669	294	102,827	182	471,641	257
290	288	Rexnord (Milwaukee)[12]	1,130,039	783,234	301	36,548	319	392,509	291
291	306	Johnson Controls (Milwaukee)[5]	1,128,386	792,040	297	48,132	292	356,164	308
292	297	Ex-Cell-O (Troy, Mich.)[20]	1,124,494	721,167	310	56,810	268	412,814	282
293	303	Perkin-Elmer (Norwalk, Conn.)[16]	1,115,830	840,162	290	78,125	227	449,798	269
294	300	McGraw-Hill (New York)	1,110,125	879,387	280	96,117	190	496,115	244
295	296	Parker-Hannifin (Cleveland)[5]	1,105,891	777,007	302	64,062	254	424,269	275
296	310	Federal Co. (Memphis)[21]	1,099,893	317,756	463	20,121	400	175,724	424
297	317	Joy Manufacturing (Pittsburgh)[5]	1,095,257	842,811	288	87,780	207	493,165	246
298	290	International Multifoods (Minneapolis)[11]	1,088,110	466,240	384	26,387	359	203,315	402
299	341	Pacific Resources (Honolulu)	1,080,404	405,575	415	17,106	416	81,967	474
300	313	Becton Dickinson (Paramus, N.J.)[5]	1,066,093	1,004,324	257	75,863	232	569,564	221

•Not among the 500 or the Second 500 in 1980.

¶Includes sales from discontinued operations of at least 10%: see explanation of "sales" on page 280.

N.A. Not available.

**Reflects an extraordinary credit of at least 10%: see the explanations of "net income" and "earnings per share" on page 280.

†Average for the year: see the reference to "employees" on page 280.

‡Reflects an extraordinary charge of at least 10%: see the explanations of "net income" and "earnings per share" on page 280.

EMPLOYEES NUMBER	EMPLOYEES RANK	NET INCOME AS PERCENT OF SALES %	SALES RANK	NET INCOME AS PERCENT OF STOCKHOLDERS' EQUITY %	STOCKHOLDERS' EQUITY RANK	EARNINGS PER SHARE '81($)	'80($)	'71($)	GROWTH RATE 1971-81 %	GROWTH RATE 1971-81 RANK	TOTAL RETURN TO INVESTORS 1981 %	1981 RANK	1971-81 AVERAGE %	1971-81 AVERAGE RANK	INDUSTRY CODE
16,784	243	2.2	408	3.2	449	0.95	2.60	1.96	(6.50)	404	(14.03)	340	(11.84)	450	38
26,791	165	4.9	221	13.8	215	3.78	4.31	0.94	16.23	155	(21.76)	382	4.68	304	44
20,800†	205	1.0	441	3.5	447	0.65	2.84	1.61	(8.67)	410	(10.00)	300	5.36	294	34
12,380†	300	3.3	338	13.3	263	5.57	5.04	0.68[a]	23.41	69	9.15	171	9.17	210	26
12,033	305	2.0	414	22.0	39	2.21	1.55	0.29	22.52	73	(20.21)	375	21.20	32	20
22,180†	196	3.4	327	7.8	400	1.88	1.94	1.36	3.29	375	25.24	95	(4.52)	428	22
14,262	275	4.7	235	11.4	319	4.45	4.96	1.41	12.18	234	5.71	195	4.80	311	34
25,000	177	12.6	19	20.6	90	3.17	2.81	0.68	16.64	147	2.78	215	9.09	213	27
15,881	254	2.2	407	4.9	437	2.35	4.18	2.36	(0.04)	391	(8.75)	293	(0.27)	397	45
26,000	171	5.0	219	13.5	255	3.01	1.01	1.37	8.19	315	25.92	85	(3.17)	422	47
17,300†	234	2.4	400	6.0	425	2.04	2.68	2.75	(2.94)	400	29.98	65	7.32	257	26
18,000	225	4.8	231	28.3	17	3.48	4.02	0.56	19.62	107	(60.23)	468	15.39	92	41
26,000	170	4.1	285	16.4	184	5.06	4.11	1.91	10.81	266	44.56	29	7.89	242	31
24,400	179	7.1	99	17.1	144	5.57	5.25	1.06	18.05	131	(25.04)	397	15.76	86	32
2,199	485	—		—		N.A.	N.A.	N.A.	—		—		—		29
12,000	306	5.2	197	15.9	178	3.90	4.15	0.89	15.92	160	1.50	221	20.08	45	26
8,300	374	3.0	366	13.0	270	4.14	4.90	1.31	12.19	232	(12.21)	319	7.57	249	29
10,800	324	6.1	137	17.4	133	3.31	3.56[b]	1.27[b]	10.05	286	7.71	182	4.82	310	42
28,000	158	1.2	433	5.2	432	0.82	1.40	1.97[c]	(9.39)	409	(40.26)	453	(7.17)	440	38
22,754	192	3.3	339	16.5	100	2.50	2.16	0.71	13.41	211	40.29	36	12.04	145	20
15,100†	263	6.4	129	14.1	238	4.20	3.70	1.27	12.71	223	10.32	168	8.09	238	27
19,430†	216	8.1	73	14.8	211	3.09	2.87	0.77	14.91	183	11.49	163	7.39	253	27
3,170	473	11.7	24	17.8	127	3.82	4.74	1.85	8.78	269	(37.19)	445	(1.47)	408	10
19,650	215	10.9	30	20.4	64	3.75	3.65	0.68	18.62	119	8.39	228	9.64	202	36
17,399	233	1.0	445	2.4	452	0.83	2.17	3.97	(16.81)	412	6.87	189	0.47	386	32
22,500	194	3.4	333	11.4	324	4.23	4.66	0.66	20.41	94	15.65	145	14.56	100	22
12,853	291	11.1	28	21.7	43	5.80	3.73	0.36	32.04	35	(27.58)	409	23.05	21	45
10,800	323	5.8	158	12.4	293	5.26	5.10	3.13	5.33	354	(11.37)	312	0.06	394	37
14,697	268	1.0	443	3.6	446	0.96	0.40	2.10	(7.63)	408	(9.68)	298	(4.69)	430	22
10,670	326	3.5	320	10.8	348	4.02	4.20	1.22	12.66	224	4.75	203	6.08	282	28
5,300	440	—		—		N.A.	N.A.	N.A.	—		—		—		43
13,300	287	5.3	184	9.6	373	N.A.	N.A.	N.A.	—		—		—		28
2,810	481	—		—		N.A.	N.A.	N.A.	—		—		—		20
7,316	395	9.5	49	10.7	97	N.A.	N.A.	N.A.	—		—		—		33
18,494	223	—		—		(2.76)	0.74	2.15	—		28.30	81	(1.39)	466	46
15,600	258	5.3	186	15.7	189	3.15	2.47	0.81	14.55	189	22.38	108	15.36	93	34
35,700	124	4.5	251	15.7	188	2.37	2.56	0.07	42.22	19	(52.48)	464	15.64	89	36
11,440†	314	5.2	193	12.0	280	14.28	2.85	0.62[d]	36.86	24	45.24	28	7.01	265	23
22,700	193	9.0	59	21.8	41	3.82	3.41	1.32	11.21	259	5.43	196	4.50	316	36
17,000	239	3.4	328	9.8	370	1.92	2.09	0.86	8.49	310	(9.84)	290	7.07	263	45
20,000	212	4.3	274	13.4	256	3.43	2.41	1.16	11.55	251	(13.92)	339	9.11	212	36
16,300	247	5.1	207	13.8	246	3.71	3.27	0.50[e]	22.19	79	(1.54)	245	13.77	113	45
15,402	260	7.0	104	17.4	134	1.81	1.87	0.24	18.20	127	(21.04)	378	7.66	247	36
14,258	276	8.8	62	19.8	78	3.94	3.48	0.79	17.43	138	15.52	147	15.61	90	27
22,200	195	5.8	155	15.0	206	4.12	3.80	0.95	15.80	164	9.82	166	10.03	190	34
13,000	290	1.8	417	11.4	322	2.47	1.19	0.16	31.49	38	(12.37)	321	19.08	52	20
14,186	277	8.0	77	17.8	123	4.46	3.05	1.09	15.15	177	(1.93)	249	8.09	224	45
7,887	386	2.6	377	14.0	239	3.49	2.31	1.21	11.17	260	25.66	91	11.54	158	20
739	496	1.8	423	20.9	58	1.32	1.88	0.39	15.97	169	21.26	90	—		29
21,500	199	7.1	109	13.3	262	3.61	3.14	1.82	13.47	209	(7.18)	291	4.96	301	36

[a]Name changed from Richardson-Merrell March 10, 1981, when the prescription-drug business was spun off to Dow Chemical (rank: 24)

[b]Figures are for Richardson-Merrell

[c]Wholly owned by Unilever

[d]Wholly owned by SOC Financial

THE 500 LARGEST INDUSTRIALS

RANK '81	RANK '80	COMPANY	SALES ($000)	ASSETS ($000)	ASSETS RANK	NET INCOME ($000)	NET INCOME RANK	STOCKHOLDERS' EQUITY ($000)	STOCKHOLDERS' EQUITY RANK
301	311	**Tektronix** (Beaverton, Ore.)[21]	1,061,834	953,753	267	80,167	223	557,544	225
302	301	**Cessna Aircraft** (Wichita)[9]	1,060,097	657,641	329	60,566	259	345,578	309
303	267	**CF Industries** (Long Grove, Ill.)	1,053,698	1,132,653	236	N.A.[23]		519,754	237
304	289	**G.D. Searle** (Skokie, Ill.)	1,049,700¶	1,094,300	243	98,700	189	577,500	219
305	319	**Sundstrand** (Rockford, Ill.)	1,045,687	892,894	278	95,011	196	465,412	262
306	305	**Universal Leaf Tobacco** (Richmond, Va.)[6]	1,039,736	405,779	414	31,272	341	178,868	421
307	•	**BASF Wyandotte** (Parsippany, N.J.)[36]	1,038,400	791,400	298	26,700	372	282,600	347
308	330	**NVF** (Yorklyn, Del.)	1,034,024	1,410,508	207	440	459	248,605	367
309	309	**Cyclops** (Pittsburgh)	1,031,414	434,380	397	21,384	398	194,492	407
310	320	**Kaiser Steel** (Oakland, Calif.)	1,029,559	975,946	262	(437,455)	488	262,334	357
311	342	**Dover** (New York)	1,025,521	561,587	347	96,118	193	391,141	293
312	274	**Louisiana-Pacific** (Portland, Ore.)	1,023,050	1,210,930	225	83,280**	214	745,920	189
313	292	**Interlake** (Oak Brook, Ill.)	1,016,605	710,217	314	46,577	300	358,748	305
314	258	**Commonwealth Oil Refining** (San Antonio)	1,012,911	235,735	483	(212,309)**	484	11,319	496
315	315	**Stanley Works** (New Britain, Conn.)	1,009,487	666,470	327	55,368	271	384,099	297
316	314	**Willamette Industries** (Portland, Ore.)	975,640	894,316	276	28,604	357	432,353	273
317	308	**National Gypsum** (Dallas)	965,665	834,849	292	38,824	317	484,972	252
318	338	**Morton-Norwich Products** (Chicago)[6]	957,584	696,511	319	53,010	277	382,202	299
319	335	**Anchor Hocking** (Lancaster, Ohio)	953,421	584,372	344	29,633	352	308,086	326
320	331	**Reichhold Chemicals** (White Plains, N.Y.)	950,112	408,581	410	14,674‡	424	174,831	427
321	294	**ACF Industries** (New York)	939,095	1,240,559	221	47,525	294	404,084	285
322	343	**Cincinnati Milacron** (Cincinnati)	934,395	715,779	313	60,787	258	349,315	308
323	329	**Adolph Coors** (Golden, Colo.)	929,915*	956,384	265	51,970	280	753,567	186
324	385	**Cameron Iron Works** (Houston)[6]	929,003	1,094,349	242	109,996	167	507,223	239
325	433	**Storage Technology** (Louisville, Colo.)	921,963	1,072,689	246	82,400	216	466,010	260
326	395	**CBI Industries** (Oak Brook, Ill.)	919,929	1,013,243	256	84,162	211	393,764	290
327	345	**Quaker State Oil Refining** (Oil City, Pa.)	918,913	509,614	369	27,363	364	239,722	373
328	323	**Lone Star Industries** (Greenwich, Conn.)	917,602	1,178,192	229	56,103	270	438,001	272
329	316	**Springs Mills** (Fort Mill, S.C.)	917,042	546,317	353	39,986	315	364,702	302
330	349	**Mattel** (Hawthorne, Calif.)[39]	915,690	550,493	352	7,898	446	207,299	397
331	327	**Scovill** (Waterbury, Conn.)	908,177¶	557,724	350	(4,534)	464	179,915	419
332	324	**Midland-Ross** (Cleveland)	907,220	688,892	321	24,691	381	292,352	340
333	332	**Newmont Mining** (New York)	903,096	1,932,826	168	375,593**	47	1,303,618	105
334	333	**CertainTeed** (Valley Forge, Pa.)	891,532	663,726	328	(10,916)	467	291,315	342
335	328	**Jos. Schlitz Brewing** (Milwaukee)	881,674*	608,149	337	(20,604)	471	305,438	329
336	348	**Potlatch** (San Francisco)	880,493	1,186,319	227	57,804	264	544,297	233
337	326	**Lubrizol** (Wickliffe, Ohio)	878,291	673,165	325	92,031	201	478,518	253
338	359	**Masco** (Taylor, Mich.)	876,530	940,013	270	88,320	206	492,260	247
339	398	**Bally Manufacturing** (Chicago)	866,447	705,260	316	81,676	218	394,208	288
340	352	**Thomas J. Lipton** (Englewood Cliffs, N.J.)[36]	864,700	534,945	358	49,561	291	301,282	332
341	457	**Wang Laboratories** (Lowell, Mass.)[6]	856,376	894,694	275	78,073	228	465,596	261
342	322	**AM International** (Chicago)[18]	855,546¶	546,213	354	(245,051)	485	13,770	495
343	353	**National Service Industries** (Atlanta)[19]	853,436	404,362	418	50,086	287	276,214	349
344	374	**New York Times** (New York)	841,707	598,865	339	49,970	289	296,198	334
345	321	**Amsted Industries** (Chicago)[9]	837,078	492,115	373	50,600	286	377,827	300
346	403	**Freeport-McMoRan** (New York)[40]	835,404	1,480,313	200	159,366	125	706,965	198
347	377	**Federal-Mogul** (Southfield, Mich.)	832,721	596,520	340	36,194	330	266,924	355
348	370	**Cluett Peabody** (New York)	832,199	442,140	394	21,338	400	205,082	399
349	379	**General Instrument** (New York)[11]	825,074	645,399	330	68,124	244	422,379	279
350	362	**General Cinema** (Chestnut Hill, Mass.)[12]	823,551	503,328	370	44,265	304	203,815	400

¶Includes sales from discontinued operations of at least 10%; see explanation of "sales" on page 280.

N.A. Not available.

*Does not include excise taxes; see explanation of "sales" on page 280.

**Reflects an extraordinary credit of at least 10%; see the explanations of "net income" and "earnings per share" on page 280.

†Average for the year; see the reference to "employees" on page 280.

‡Reflects an extraordinary charge of at least 10%; see the explanations of "net income" and "earnings per share" on page 280.

[36]Wholly owned by BASF AG.

[39]Figures are for fiscal year ending January 31, 1981.

[40]Name changed from Freeport Minerals April 7, 1981.

EMPLOYEES		NET INCOME AS PERCENT OF SALES		NET INCOME AS PERCENT OF STOCKHOLDERS' EQUITY		EARNINGS PER SHARE			EARNINGS PER SHARE GROWTH RATE 1971-81		TOTAL RETURN TO INVESTORS 1981		TOTAL RETURN TO INVESTORS 1971-81 AVERAGE		INDUSTRY
NUMBER	RANK	%	RANK	%	RANK	'81($)	'80($)	'71($)	%	RANK	%	RANK	%	RANK	CODE
24,028	180	7.5	89	14.4	223	4.34	4.66	0.58	22.29	77	(8.48)	290	13.98	110	38
15,838†	255	5.7	162	17.5	129	3.19	1.51	0.44	21.91	82	(12.81)	326	10.81	173	41
2,456	482	—		—		N.A.	N.A.	N.A.	—		—		—		28
16,300	248	9.4	51	17.1	146	1.90	1.85	0.87	8.12	316	18.13	131	5.33	295	42
16,100	251	9.1	57	20.4	63	5.23	4.57	0.19	39.31	22	(22.66)	388	15.86	85	41
14,000†	279	3.0	353	17.5	131	3.55	3.20	0.85	15.37	173	(20.56)	376	18.06	58	21
4,258	460	2.6	380	9.4	374	N.A.	N.A.	N.A.	—		—		—		28
10,200	341	—	459	0.2	458	0.23	0.15	0.13**	5.87	348	(25.16)	399	30.06	3	33
7,800	387	2.1	411	11.0	335	6.21	6.14	1.15	18.37	124	7.24	186	11.84	153	33
10,815†	322	—		—		(61.53)	27.16	(0.15)	—		9.23	170	12.01	147	33
13,423	286	9.4	53	24.6	26	2.69	2.05	0.36	22.28	78	7.06	187	19.62	48	45
14,500	273	8.1	72	11.2	331	2.70**	1.96	N.A.	—		(13.54)	334	—		26
9,875	346	4.6	247	13.0	272	7.59	2.29	2.02	14.15	195	34.17	54	14.82	96	33
800	495	—		—		(14.05)	(0.34)	0.96	—		(71.05)	470	(22.20)	456	29
17,556†	230	5.5	175	14.4	220	2.10	1.94	0.68	11.94	240	4.10	206	9.47	204	34
8,220	376	2.9	362	6.6	416	1.88	4.16	0.91	7.53	325	(12.14)	318	8.88	220	26
12,695	294	4.0	289	8.0	398	2.41	3.66	1.29	6.45	343	5.04	200	8.60	226	32
10,500	332	5.5	170	13.9	243	3.90	3.52	1.75	8.34	312	36.44	50	6.92	266	28
17,100	237	3.1	347	9.6	372	2.89	2.81	1.83	4.68	364	3.40	211	4.31	320	32
5,587	433	1.5	424	8.4	394	1.70‡	1.90	0.54	12.15	236	(0.16)	233	7.37	254	28
12,248	302	5.1	205	11.8	308	5.23	5.02	1.88	10.77	267	(5.29)	271	7.82	245	37
13,602†	281	6.5	120	17.4	132	2.68	3.35	0.07**	43.98	15	(18.56)	366	18.68	56	45
9,750	349	5.6	165	6.9	413	1.48	1.86	N.A.	—		(32.25)	429	—		49
11,217	318	11.8	23	21.7	44	3.62	2.61	0.03‡	61.49	7	(21.84)	384	—		45
15,197	262	8.9	60	17.7	125	2.61	1.76	(0.32)	—		54.70	20	25.81	13	44
13,000	289	9.1	55	21.4	49	4.73	3.81	1.54	11.88	243	(30.78)	418	12.65	137	34
5,000	446	3.0	356	11.4	320	1.26	1.19	0.82	4.39	368	(34.54)	435	(2.50)	415	29
9,584	352	6.1	138	12.8	282	4.52	5.25	1.72‡	10.14	284	(8.25)	287	6.80	270	32
20,200†	210	4.4	264	11.0	336	4.50	1.20	1.08	15.34	174	41.13	36	10.33	184	22
16,000†	253	0.9	446	3.8	443	0.12	1.38	1.11	(19.95)	413	5.12	199	(2.72)	420	47
17,526	231	—		—		(0.50)	2.56	1.54	—		25.90	86	3.42	346	36
13,900	280	2.7	373	8.4	393	2.06	3.70	0.51	14.98	181	(21.90)	385	14.42	102	45
12,400	299	41.6	2	28.8	15	14.30**	7.64	2.14	20.92	90	(1.77)	248	9.87	194	33
8,400	373	—		—		(1.14)	(0.31)	1.52	—		2.49	217	(1.94)	413	32
4,900	448	—		—		(0.71)	0.93	1.22	—		31.85	57	(8.84)	443	49
9,368	354	5.6	119	10.6	351	3.25	3.25	0.09‡	43.14	17	(17.43)	358	13.21	128	26
4,237	461	10.5	37	19.2	92	2.36	2.87	0.58	15.07	179	(25.57)	402	1.24	377	28
10,000	343	10.1	42	17.9	119	3.46	3.03	0.48	21.84	83	24.19	100	8.00	239	34
9,550	353	9.4	50	20.7	58	3.03	2.01	0.21	30.59	40	27.06	78	17.04	73	47
5,869†	430	5.7	160	16.5	159	N.A.	N.A.	N.A.	—		—		—		20
15,770	257	9.1	56	16.8	155	1.36	1.00	0.10	29.82	43	(18.61)	367	23.89	17	44
17,250	235	—		—		(26.71)	0.69	0.30‡	—		(73.41)	471	(17.32)	455	26
17,200	236	5.9	154	18.1	113	3.93	3.54	1.46	10.41	274	29.43	68	5.41	291	36
7,300	398	5.9	152	16.9	151	4.03	3.37	0.80	17.55	136	15.53	146	12.01	149	27
10,300	335	6.0	143	13.4	259	4.68	6.60	0.85	18.60	120	(12.80)	326	20.31	42	33
6,500	418	19.1	4	22.5	34	2.30	2.60	0.21	27.04	49	(27.86)	410	23.10	20	28
14,731	267	4.3	266	13.6	254	2.82	2.88	0.26‡	26.92	50	13.29	154	13.18	129	40
19,676	214	2.6	381	10.4	356	2.25	1.60	1.17	6.76	341	85.68	13	2.20	364	23
26,400	168	8.3	69	16.1	170	7.46	5.90	0.43	33.02	33	43.88	31	22.37	26	36
12,500	296	5.4	182	21.7	42	3.99	2.72	0.88	16.32	154	44.30	30	10.09	189	49

THE 500 LARGEST INDUSTRIALS

RANK '81	RANK '80	COMPANY	SALES ($000)	ASSETS ($000)	ASSETS RANK	NET INCOME ($000)	NET INCOME RANK	STOCKHOLDERS' EQUITY ($000)	STOCKHOLDERS' EQUITY RANK
351	407	**Big Three Industries** (Houston)	823,280	1,015,259	255	108,854	171	555,765	227
352	373	**Peavey** (Minneapolis)[18]	820,884	385,276	426	23,418	390	177,451	423
353	369	**Revere Copper & Brass** (New York)	820,851	473,756	380	9,356	441	188,717	414
354	351	**Champion Spark Plug** (Toledo)	818,552	625,993	333	30,345	347	384,330	296
355	365	**Monfort of Colorado** (Greeley, Colo.)[19]	816,563	150,336	493	16,007**	420	36,733	493
356	368	**Tecumseh Products** (Tecumseh, Mich.)	815,743	442,324	393	59,150	262	341,954	312
357	400	**Hart Schaffner & Marx** (Chicago)[29]	815,560	464,874	386	27,410	363	245,465	368
358	383	**Ball** (Muncie, Ind.)	815,182	481,660	377	29,246	354	203,577	401
359	355	**Trane** (La Crosse, Wis.)	807,438	539,726	357	37,240	325	272,201	351
360	376	**G. Heileman Brewing** (La Crosse, Wis.)	807,042	321,213	461	40,230	314	158,929	437
361	363	**Bangor Punta** (Greenwich, Conn.)[9]	799,995	551,454	351	44,182	305	231,061	378
362	390	**Outboard Marine** (Waukegan, Ill.)[9]	795,595	604,004	338	26,949	370	294,338	337
363	336	**Intel** (Santa Clara, Calif.)	788,676	871,517	281	27,359	365	487,817	250
364	380	**Dayco** (Dayton, Ohio)[12]	786,957	475,810	378	(2,678)‡	461	140,688	449
365	354	**Sybron** (Rochester, N.Y.)	785,186¶	529,850	361	27,606	362	253,780	363
366	388	**A.O. Smith** (Milwaukee)	783,749	459,656	397	5,421	452	210,842	393
367	366	**Vulcan Materials** (Birmingham, Ala.)	783,490	676,625	324	78,244	226	405,021	284
368	384	**Brockway Glass** (Brockway, Pa.)	780,172	426,853	401	15,404	422	214,921	389
369	372	**Southwest Forest Industries** (Phoenix)	779,461	783,466	300	18,420**	409	256,936	360
370	444	**Tyler** (Dallas)	770,889	451,204	396	32,045**	337	143,464	447
371	361	**Figgie International** (Willoughby, Ohio)[41]	769,894	475,469	379	25,690	378	175,729	425
372	391	**Miles Laboratories** (Elkhart, Ind.)[42]	769,606	684,412	323	1,465‡	458	304,915	331
373	364	**Arcata** (Menlo Park, Calif.)[6]	762,991	716,176	312	57,334	265	288,666	343
374	470	**National Cooperative Refinery Assoc.** (McPherson, Kans.)[6]	757,973	405,050	417	N.A.[23]		120,000	459
375	406	**Washington Post** (Washington)	753,447	458,197	388	32,710	336	213,393	390
376	346	**Hoover** (North Canton, Ohio)	749,919	449,721	391	(18,778)	470	193,046	408
377	411	**Moore McCormack Resources** (Stamford, Conn.)	747,400	978,117	261	51,393	284	342,810	311
378	417	**VF** (Wyomissing, Pa.)	746,265	399,541	422	52,205	279	242,423	370
379	409	**Data General** (Westboro, Mass.)[9]	736,872	718,597	311	50,663**	285	382,249	298
380	467	**Trinity Industries** (Dallas)[13]	736,104	376,636	435	46,641	298	141,951	448
381	503	**Seasource** (Houston)[9]	730,731	532,789	359	58,551	263	227,081	380
382	429	**Dean Foods** (Franklin Park, Ill.)	728,643	190,888	491	16,155	419	77,206	481
383	399	**Thiokol** (Newtown, Pa.)	728,515	467,731	383	37,112	327	251,685	365
384	396	**Dow Corning** (Midland, Mich.)	721,861	787,088	299	75,938	231	422,238	280
385	427	**McLouth Steel** (Detroit)	720,500[43]	400,000[43]	421	(40,000)[43]	477	80,000[43]	478
386	397	**Bemis** (Minneapolis)	719,008	392,978	423	17,766	412	178,426	422
387	339	**Genesco** (Nashville)[18]	715,867	379,649	431	18,063**	410	60,435	484
388	381	**Saxon Industries** (New York)	714,900[43]	N.A.		N.A.		N.A.	
389	414	**Clorox** (Oakland, Calif.)[6]	714,023	415,993	406	38,083	322	250,352	366
390	430	**Dorchester Gas** (Dallas)[19]	712,033	409,241	408	31,287	340	149,242	441
391	428	**EG&G** (Wellesley, Mass.)	704,161	225,349	486	34,119	333	137,738	450
392	386	**Ferro** (Cleveland)	702,213	392,271	424	25,503	379	225,307	382
393	412	**Bell & Howell** (Chicago)	701,488	408,911	409	21,627**	397	184,752	415
394	387	**Signode** (Glenview, Ill.)	700,252	484,053	375	36,682	329	328,340	320
395	495	**Mitchell Energy & Development** (The Woodlands, Tex.)[39]	696,044	1,180,144	228	100,835	185	285,511	345
396	394	**Purex Industries** (Lakewood, Calif.)[6]	692,579	349,650	442	26,709	371	211,585	392
397	378	**Pabst Brewing** (Milwaukee)	691,864*	404,045	419	(23,536)	473	254,835	361
398	410	**Insilco** (Meriden, Conn.)	684,931	594,906	341	34,007	334	232,620	377
399	420	**DPF** (Hartsdale, N.Y.)[21,44]	681,207¶	179,042	492	(24,364)**	474	46,819	490
400	423	**Varian Associates** (Palo Alto, Calif.)[9]	680,057	495,132	372	(3,554)	463	192,050	409

●Not among the 500 or the Second 500 in 1980.

¶Includes sales from discontinued operations of at least 10%; see explanation of "sales" on page 280.

N.A. Not available.

*Does not include excise taxes; see the explanation of "sales" on page 280.

**Reflects an extraordinary credit of at least 10%; see the explanations of "net income" and "earnings per share" on page 280.

†Average for the year; see the reference to "employees" on page 280.

‡Reflects an extraordinary charge of at least 10%; see the explanations of "net income" and "earnings per share" on page 280.

EMPLOYEES NUMBER	EMPLOYEES RANK	NET INCOME AS PERCENT OF STOCKHOLDERS' EQUITY: SALES %	SALES RANK	EQUITY %	EQUITY RANK	EARNINGS PER SHARE '81($)	'80($)	'71($)	GROWTH RATE 1971-81 %	GROWTH RATE 1971-81 RANK	TOTAL RETURN TO INVESTORS 1981 %	1981 RANK	1971-81 AVERAGE %	1971-81 AVERAGE RANK	INDUSTRY CODE
6,329	422	13.2	17	19.6	80	2.57	2.05	0.26	25.75	56	(7.02)	279	18.36	57	28
5,664	434	2.9	368	13.2	265	4.16	4.02	0.96	15.79	165	(31.63)	422	—		20
6,507†	417	1.1	437	5.0	435	1.64	3.82	0.26‡	20.22	98	(7.44)	282	1.87	370	33
13,800	284	3.7	311	7.9	399	0.79	0.96	0.93	(1.62)	395	(7.78)	283	(1.73)	410	36
2,100	486	2.0	415	43.6	3	3.23**	(4.82)	0.15	35.93	26	5.78	194	(5.70)	433	20
8,840†	387	7.3	96	17.3	136	10.81	7.49	3.36	12.40	230	17.09	140	7.24	259	45
21,500	200	3.4	332	11.2	330	3.16	2.63	1.18	10.35	276	66.09	11	4.23	322	23
10,573	329	3.6	317	14.4	224	5.51	4.77	N.A.	—		31.44	59	—		34
10,700	325	4.6	243	13.7	247	3.65	3.32	1.51	9.23	299	40.59	37	1.84	371	45
5,700	431	5.0	215	26.3	23	3.05	2.65	0.56**	18.47	122	12.11	162	20.81	36	49
11,400	315	5.5	171	19.1	93	6.06	4.55	0.15‡	44.76	14	(11.59)	315	12.63	136	41
10,400	334	3.4	331	9.2	382	3.22	0.28	2.64	1.26	385	76.59	7	(2.50)	416	47
16,800	242	3.5	323	5.6	430	0.61	2.21	0.03**	35.15	28	(44.10)	457	30.26	2	36
10,600	327	—		—		(0.49)‡	1.51	1.13‡	—		3.77	209	3.31	348	30
14,466†	274	3.5	321	10.9	341	2.53	2.15	1.48	5.51	353	29.52	67	(1.27)	404	38
10,251†	339	0.7	448	2.6	451	1.11	(0.35)	2.26‡	(6.86)	407	(3.08)	258	0.17	390	40
5,937	429	10.0	44	19.3	89	6.76	6.04	0.81‡	23.64	65	34.61	53	21.09	33	28
11,500	313	2.0	413	7.2	410	2.07	2.42	1.81	1.35	382	12.12	161	4.89	302	32
6,600	415	2.4	401	7.2	409	1.40**	3.21	1.21	1.47	381	(30.84)	420	1.13	379	26
10,300	336	4.2	261	22.3	35	3.41**	1.41	0.63	18.40	123	49.15	24	16.54	78	33
15,400	261	3.3	337	14.6	216	4.03	3.20	0.70	19.13	113	(11.48)	314	9.86	195	45
9,249	357	0.2	457	0.5	457	N.A.	N.A.	N.A.	—		—		—		42
13,200	288	7.5	90	19.9	74	7.71	4.25	(1.72)‡	—		30.81	61	10.10	188	27
500	497	—		—		N.A.	N.A.	N.A.	—		—		—		29
5,400	438	4.3	267	15.3	200	2.32	2.44	0.66	13.40	212	39.78	40	19.19	51	27
16,460	245	—		—		(1.53)	2.46	1.64	—		(17.82)	360	(4.52)	429	36
4,600	455	6.9	109	15.0	207	6.01	5.50	0.20	40.53	21	(10.72)	306	29.52	6	10
19,000	221	7.0	106	21.5	45	6.46	5.15	1.54	15.42	170	57.98	18	9.81	197	23
14,625	270	6.9	110	13.3	265	4.76**	5.20	0.24	34.87	29	(18.41)	365	11.46	160	44
7,500	392	6.3	130	32.9	7	2.95	1.63	0.19	31.55	37	(34.61)	436	26.79	9	37
10,000	345	8.0	78	25.8	21	4.06	2.77	N.A.	—		(28.73)	412	—		38
3,782	468	2.2	406	20.9	55	2.67	2.07	0.36	22.19	80	7.27	185	24.22	16	20
8,889	366	5.1	203	14.7	212	3.20	2.80	0.58	18.62	118	(2.45)	252	18.91	54	28
6,046†	427	10.5	35	18.0	117	N.A.	N.A.	N.A.	—		—		—		28
N.A.		—		—		(7.37)[43]	(10.51)	(1.66)	—		(59.57)	467	(10.74)	446	33
8,714	369	2.5	391	10.0	366	4.70	3.85	1.38	13.04	217	(3.80)	262	10.00	191	26
18,000	226	2.5	385	29.9	13	1.16**	0.02	1.02‡	1.29	384	27.16	77	(13.34)	451	23
N.A.		—		—		N.A.	0.76	(0.03)‡	—		(33.24)	432	(13.62)	452	26
5,200	443	5.3	183	15.2	203	1.66	1.44	0.84	7.05	333	19.32	122	(4.41)	426	28
1,300	492	4.4	261	21.0	54	1.72	1.92	0.09**	34.32	31	(36.32)	442	25.25	10	29
18,000	227	4.8	227	24.8	25	1.21	0.97	0.13	24.99	60	(8.31)	289	14.23	105	38
9,120	360	3.6	314	11.3	325	3.30	3.77	1.45	8.57	306	38.23	47	7.36	255	28
11,224	317	3.1	350	11.7	309	3.83**	4.69	2.46	4.53	366	(32.06)	427	(6.34)	438	38
6,677	413	5.2	192	11.2	329	4.57	4.86	2.01	8.56	307	1.46	222	3.82	336	34
3,075	476	14.5	11	35.3	6	2.10	1.27	N.A.	—		(45.79)	459	—		10
6,300	423	3.9	303	12.6	286	2.36	2.34	0.93‡	9.76	290	70.83	10	10.53	180	43
4,000	465	—		—		(2.88)	1.55	2.66	—		5.36	198	(11.29)	447	49
9,200	358	5.0	218	14.6	215	2.20	2.25	0.75	11.36	258	(17.31)	355	8.73	223	28
12,500	297	—		—		(5.39)**	1.64	1.37	—		68.50	12	0.35	387	20
12,800	292	—		—		(0.45)	2.77	(0.94)‡	—		9.39	189	9.78	198	36

[41]Name changed from A-T-O June 1, 1981.

[42]Wholly owned by Bayer AG.

[43]FORTUNE estimate.

[44]Name changed to Interstate Bakeries November 16, 1981.

THE 500 LARGEST INDUSTRIALS

RANK '81	RANK '80	COMPANY	SALES ($000)	ASSETS ($000)	ASSETS RANK	NET INCOME ($000)	NET INCOME RANK	STOCKHOLDERS' EQUITY ($000)	STOCKHOLDERS' EQUITY RANK
401	421	**Kane-Miller** (Tarrytown, N.Y.)	676,246	196,423	489	4,288	454	85,709	470
402	415	**Magic Chef** (Cleveland, Tenn.)[6]	674,274	368,908	437	16,270	418	160,707	434
403	268	**GAF** (New York)	672,514	559,760	348	26,060	376	134,687	452
404	422	**United Merchants & Manufacturers** (New York)[6]	669,564	472,935	381	(2,873)**	462	57,325	486
405	449	**National Starch & Chemical** (Bridgewater, N.J.)[36]	668,372	405,051	416	41,444	311	254,053	362
406	375	**Cone Mills** (Greensboro, N.C.)	667,516	431,013	400	33,721	335	340,747	313
407	426	**Nalco Chemical** (Oak Brook, Ill.)	666,591	466,175	385	81,209	219	335,974	315
408	454	**McCormick** (Hunt Valley, Md.)[29]	659,817	364,903	438	29,924	350	173,726	428
409	418	**Scott & Fetzer** (Lakewood, Ohio)[29]	656,386	405,794	413	29,067	355	184,000	416
410	401	**Nashua** (Nashua, N.H.)	653,901	316,863	464	9,352	442	145,338	445
411	438	**Maryland Cup** (Owings Mills, Md.)[9]	647,042	376,645	434	30,453	345	223,411	384
412	416	**Harnischfeger** (Brookfield, Wis.)[12]	646,100	510,606	368	29,060	356	233,851	376
413	441	**H.H. Robertson** (Pittsburgh)	644,416	337,973	450	27,818	361	134,068	453
414	462	**Dow Jones** (New York)	641,024	532,075	360	71,390	239	269,663	354
415	371	**Mohasco** (Amsterdam, N.Y.)	640,336	352,368	440	15,204	423	198,301	403
416	425	**Avery International** (Pasadena, Calif.)[29]	637,976	409,847	407	26,549	373	180,382	418
417	431	**Dan River** (Greenville, S.C)	634,777	406,927	412	14,540	425	205,204	398
418	408	**H.K. Porter** (Pittsburgh)	631,064	313,935	465	8,231	445	151,031	440
419	434	**Gerber Products** (Fremont, Mich.)[13]	631,017	358,224	439	30,843‡	344	236,670	375
420	393	**Hyster** (Portland, Ore.)[39]	629,668	486,841	374	43,076	307	306,382	327
421	455	**Economics Laboratory** (St. Paul)[6]	628,638	424,092	404	29,765	351	210,544	394
422	456	**Eagle-Picher Industries** (Cincinnati)[29]	624,208	401,263	420	18,553	408	217,889	387
423	451	**Beckman Instruments** (Fullerton, Calif.)[6]	618,125	638,868	332	36,755	328	310,132	324
424	491	**Copperweld** (Pittsburgh)	616,691	416,371	405	37,221	326	191,050	413
425	360	**Handy & Harman** (New York)	611,166	344,746	447	23,431	389	128,546	454
426	475	**Todd Shipyards** (New York)[13]	610,480	288,288	470	23,028**	393	80,259	477
427	450	**Wyman-Gordon** (Worcester, Mass.)	610,302	384,584	428	57,220	237	242,188	371
428	440	**Wallace Murray** (New York)[45]	609,813	517,851	364	23,801	386	331,460	317
429	447	**Wm. Wrigley Jr.** (Chicago)	607,834	318,809	462	28,431	358	244,525	369
430	474	**Foxboro** (Foxboro, Mass.)	606,870	483,500	376	44,837	301	309,687	325
431	435	**Collins & Aikman** (New York)[11]	603,912	351,846	441	14,405	426	195,440	405
432	424	**M. Lowenstein** (New York)	601,320	333,200	454	17,390	414	159,349	436
433	437	**Bausch & Lomb** (Rochester, N.Y.)	600,176¶	431,073	399	9,929	439	240,035	372
434	468	**Sun Chemical** (New York)	598,776	526,168	362	25,902	377	179,487	420
435	446	**Kellwood** (St. Louis)[25]	590,096	334,828	452	3,549	455	79,498	479
436	432	**Idle Wild Foods** (Worcester, Mass.)[19]	589,146	94,253	497	7,876	447	50,312	488
437	459	**American Hoist & Derrick** (St. Paul)[29]	574,000	455,847	389	20,367	404	195,247	406
438	484	**Capital Cities Communications** (New York)	573,784	697,620	318	80,518	221	443,822	271
439	501	**E-Systems** (Dallas)	572,045	280,414	471	23,837	385	159,387	435
440	446	**Carpenter Technology** (Reading, Pa.)[6]	570,693	381,821	429	44,731	302	277,811	348
441	478	**Dennison Manufacturing** (Framingham, Mass.)	569,701	341,263	448	30,074	348	191,167	412
442	382	**Briggs & Stratton** (Wauwatosa, Wis.)[6]	568,986	334,505	453	25,113	360	237,041	374
443	458	**Stokely-Van Camp** (Indianapolis)[21]	564,957	261,815	476	9,031	444	148,303	442
444	576	**Gates Learjet** (Wichita)	564,890	345,728	446	22,444	396	113,901	462
445	439	**Hoover Universal** (Ann Arbor, Mich.)	564,571	330,711	459	23,234	392	169,917	430
446	445	**Gifford-Hill** (Dallas)	563,257	526,077	363	16,917**	417	183,064	417
447	558	**James River Corp. of Virginia** (Richmond, Va.)[25]	561,318	438,788	395	17,881‡	411	146,107	443
448	535	**Armstrong Rubber** (New Haven, Conn.)[9]	560,458	341,228	449	17,368	415	122,466	457
449	392	**Peabody International** (Stamford, Conn.)[9]	556,311¶	276,231	473	13,577	430	122,327	458
450	481	**Nucor** (Charlotte, N.C.)	544,821	384,782	427	34,729	332	212,376	391

¶Includes sales from discontinued operations of at least 10%; see explanation of "sales" on page 280.

N.A. Not available.

**Reflects an extraordinary credit of at least 10%; see the explanations of "net income" and "earnings per share" on page 280.

†Average for the year; see the reference to "employees" on page 280.

‡Reflects an extraordinary charge of at least 10%; see the explanations of "net income" and "earnings per share" on page 280.

[45]Wholly owned by Household International.

EMPLOYEES		NET INCOME AS PERCENT OF				EARNINGS PER SHARE					TOTAL RETURN TO INVESTORS				
		SALES		STOCKHOLDERS' EQUITY					GROWTH RATE 1971-81		1981		1971-81 AVERAGE		
NUMBER	RANK	%	RANK	%	RANK	'81($)	'80($)	'71($)	%	RANK	%	RANK	%	RANK	INDUSTRY CODE
3,300	471	0.6	451	5.0	434	1.42	1.49	0.71	7.18	329	60.66	16	7.49	252	20
7,610	391	2.4	394	10.1	363	1.72	0.31	0.73‡	8.95	302	17.76	136	(3.50)	424	36
6,500	419	3.9	299	19.3	88	1.62	(17.57)	0.71‡	8.60	305	13.45	153	0.19	389	29
14,000	278	—		—		(0.48)**	(3.32)	2.71	—		(13.42)	332	(14.88)	453	22
4,663	453	6.2	135	16.3	166	N.A.	N.A.	N.A.	—		—		—		28
11,400	316	5.1	208	9.9	369	5.87	8.88	1.01‡	19.24	110	(12.96)	329	17.04	74	22
4,739	452	12.2	20	24.2	28	4.04	3.61	0.86	16.73	144	0.96	225	8.45	229	28
6,500†	420	4.5	250	17.2	138	2.50	1.31	0.56	16.14	157	8.76	176	2.54	357	20
16,618	244	4.4	257	15.8	183	4.01	3.12	1.95	7.48	326	31.71	58	6.12	281	45
6,644	414	1.4	428	6.4	419	2.00	4.60	1.85	0.78	388	(21.24)	380	(5.84)	434	26
11,000†	321	4.7	236	13.6	250	4.52	3.89	1.04	15.83	162	20.81	114	8.12	236	26
6,900	407	4.5	253	12.4	289	2.93	0.53	0.87	12.91	219	(14.10)	341	9.94	192	45
7,914	385	4.3	272	20.7	57	5.94	4.56	1.16	17.74	133	54.79	19	17.05	72	34
5,400	437	11.1	29	26.5	19	2.28	1.90	0.60**	14.28	193	65.31	14	12.81	134	27
12,696	293	2.4	399	7.7	402	2.30	(0.34)	1.89	1.96	379	17.83	135	(6.09)	436	25
7,785	389	4.2	280	14.7	213	2.95	2.72	0.63**	16.69	145	25.47	92	2.05	367	26
14,550	271	2.3	403	7.1	411	2.51	3.42	(0.51)	—		(1.73)	247	10.35	182	22
6,990	406	1.3	432	5.4	431	6.74	9.88	1.34**	17.53	137	25.39	94	20.36	41	33
10,481†	333	4.9	224	13.0	266	3.46‡	3.45	2.19	4.68	363	13.91	152	2.42	360	20
7,352	393	6.8	112	14.1	238	7.14	10.46	1.22	14.65	188	(19.19)	370	10.89	170	45
7,310	397	4.7	234	14.1	233	2.21	2.31	0.68	12.51	226	(14.97)	346	(2.54)	417	43
9,700	351	3.0	357	8.5	392	1.88	2.14	1.01	6.41	344	(23.29)	391	6.27	279	45
11,800	310	5.9	151	11.9	306	1.76	1.83	0.28	20.18	99	25.74	89	17.46	67	38
4,515	456	6.0	145	19.5	86	6.51	3.33	1.34	17.12	140	53.40	21	21.94	28	33
4,627	454	3.8	306	18.2	108	1.71	2.04	0.11**	31.57	36	(36.12)	441	26.19	11	33
10,300†	337	3.8	308	28.7	16	4.49**	5.66**	0.02	71.84	2	18.77	124	14.00	109	37
4,400	458	9.4	52	23.6	31	3.05	1.65	0.16	34.28	32	18.16	129	—		34
9,720	350	3.9	297	7.2	408	N.A.	5.02	1.33	—		—		—		34
6,000	428	4.7	238	11.6	312	3.61	3.90	2.19	5.13	358	18.22	128	5.80	284	20
11,950	309	7.4	93	14.5	218	3.60	2.58	0.68	18.23	129	(8.28)	288	10.50	181	38
10,050	342	2.4	398	7.4	405	1.16	1.32	1.31	(1.21)	393	42.09	35	(3.49)	423	22
12,300	301	2.9	365	10.9	339	5.22	1.47	2.71	6.78	340	99.10	3	2.25	362	22
10,200	340	1.7	419	4.1	441	0.82	4.36	0.68	1.89	380	(12.31)	320	4.03	331	38
6,300	424	4.3	270	14.4	219	3.47	4.52	0.17	35.20	27	17.85	134	11.79	154	28
16,000	252	0.6	452	4.5	439	1.02	0.06	1.81	(5.57)	403	(1.05)	241	(6.33)	437	23
1,500	490	1.3	430	15.7	190	4.43	3.58	1.85**	9.12	300	62.35	15	—		20
7,100	402	3.6	318	10.4	354	3.29	3.41	0.59	18.75	116	(16.89)	353	9.57	203	45
7,070	403	14.0	13	18.1	112	6.12	5.56	2.17**	10.92	263	25.87	87	12.00	150	27
11,771	311	4.2	279	15.0	209	1.67	0.94	0.29	19.13	112	2.26	218	—		36
4,843	450	7.8	84	16.1	172	5.20	5.03	0.47	27.17	48	21.13	112	23.31	19	33
9,000	363	5.3	187	15.7	187	3.05	2.42	0.94	12.49	227	35.55	51	11.14	165	26
8,179	378	4.4	259	10.6	352	1.74	3.39	1.05	5.18	356	9.87	167	7.57	250	45
5,000	445	1.6	421	6.1	423	2.51	3.23	1.74	3.73	372	51.06	23	11.78	155	20
6,841	408	4.0	292	19.7	78	1.95	1.28	(0.51)	—		(11.90)	316	20.07	46	41
6,512	416	4.1	286	13.7	248	2.60	1.90	0.82	12.23	231	23.83	102	8.96	217	34
4,900	449	3.0	354	9.2	380	2.27**	3.22	1.23	6.32	345	26.86	80	7.69	246	32
8,200	377	3.2	344	12.2	300	1.86‡	2.16	N.A.	—		29.00	71	—		26
5,514	435	3.1	348	14.2	231	8.81	(10.17)	2.97	11.49	254	74.62	8	3.48	343	30
5,250	441	2.4	393	11.1	333	1.23	1.66	0.67	6.26	346	(11.96)	317	5.54	289	45
3,700	470	6.4	126	16.4	165	5.02	6.62	0.48	26.46	54	(13.82)	338	29.61	5	33

THE 500 LARGEST INDUSTRIALS

RANK '81	RANK '80	COMPANY	SALES ($000)	ASSETS ($000)	ASSETS RANK	NET INCOME ($000)	NET INCOME RANK	STOCKHOLDERS' EQUITY ($000)	STOCKHOLDERS' EQUITY RANK
451	460	**American Bakeries** (Chicago)	543,801	123,778	496	(7,690)‡	465	44,341	492
452	466	**Rohr Industries** (Chula Vista, Calif.)[18]	540,950	297,972	407	7,190	449	83,248	472
453	476	**Harcourt Brace Jovanovich** (New York)	539,296	407,425	411	23,755	387	171,950	429
454	471	**Masonite** (Chicago)[19]	537,550	376,748	433	27,115	368	273,557	350
455	473	**Consolidated Papers** (Wisconsin Rapids, Wis.)	536,899	426,464	402	54,663	273	318,866	322
456	488	**Dorsey** (Chattanooga, Tenn.)[46]	533,669	255,053	479	13,581	429	110,881	483
457	480	**Sonoco Products** (Hartsville, S.C.)	533,349	330,767	458	38,491	320	209,571	395
458	●	**L.B. Foster** (Pittsburgh)	532,373	233,000	485	21,042	402	80,415	476
459	413	**Gulf Resources & Chemical** (Houston)	529,454¶	436,788	396	(77,929)	481	105,922	464
460	483	**Fieldcrest Mills** (Eden, N.C.)	526,151	330,805	457	9,512	440	183,328	433
461	490	**Raychem** (Menlo Park, Calif.)[6]	525,398	446,272	392	35,595	331	252,690	364
462	472	**Savannah Foods & Industries** (Savannah, Ga.)	523,899	139,327	495	27,154	367	84,314	482
463	461	**Dexter** (Windsor Locks, Conn.)	523,112	321,665	460	26,473	375	165,374	431
464	511	**M/A-Com** (Burlington, Mass.)[9]	521,223	517,730	365	40,275	313	264,104	356
465	482	**Federal Paper Board** (Montvale, N.J.)	520,347	576,500	346	31,044	343	158,507	438
466	465	**Sheller-Globe** (Toledo)[9]	512,091	346,946	445	18,931	407	145,307	448
467	464	**Midland Cooperatives** (Columbia Heights, Minn.)	511,462	217,021	488	N.A.[23]		58,671	485
468	547	**Oak Industries** (Rancho Bernardo, Calif.)	507,113	609,319	336	30,350	346	262,283	358
469	507	**Titanium Metals Corp. of America** (Pittsburgh)	505,016	241,422	482	74,787	235	82,131	473
470	514	**Deluxe Check Printers** (St. Paul)	504,036	306,243	466	53,423	276	218,814	386
471	546	**Tyson Foods** (Springdale, Ark.)[9]	501,716	218,759	487	2,104	457	46,572	491
472	518	**Brown-Forman Distillers** (Louisville, Ky.)[25]	500,297	511,617	367	67,249	246	329,885	319
473	500	**Fiat-Allis** (Deerfield, Ill.)	497,494¶	348,370	443	(39,975)	476	62,941	483
474	527	**Palm Beach** (Cincinnati)	497,249	242,795	481	13,227	431	77,998	480
475	469	**Bucyrus-Erie** (South Milwaukee, Wis.)	496,362	807,181	295	37,658	323	401,865	286
476	513	**Arvin Industries** (Columbus, Ind.)	495,136	293,402	468	12,424	432	175,484	426
477	502	**Mallinckrodt** (St. Louis)	494,353	389,510	425	39,701	316	292,359	339
478	520	**American Greetings** (Cleveland)[11]	489,213	431,680	398	25,515	374	207,840	396
479	536	**Kerr Glass Manufacturing** (Los Angeles)	485,777	276,933	472	12,007	434	106,680	465
480	499	**Westmoreland Coal** (Philadelphia)	480,291	376,296	436	(14,775)	469	163,505	432
481	489	**Warnaco** (Bridgeport, Conn.)	478,883	268,241	474	21,166	401	118,612	460
482	483	**Chicago Pneumatic Tool** (New York)	478,249	348,337	444	5,723	451	157,797	439
483	494	**Ideal Basic Industries** (Denver)	476,740	988,394	258	44,019	306	395,497	287
484	347	**Belco Petroleum** (New York)	471,655¶	764,502	305	108,762	172	505,300	241
485	419	**Envirotech** (Menlo Park, Calif.)[13]	471,279	332,027	455	(55,987)	479	57,058	487
486	538	**Fort Howard Paper** (Green Bay, Wis.)	471,261	580,715	345	83,050	215	389,855	294
487	443	**Macmillan** (New York)	470,559	336,751	451	10,836	438	191,524	410
488	516	**Northwestern Steel & Wire** (Sterling, Ill.)[18]	468,494	379,109	432	28,130	360	270,153	353
489	559	**Georgia Kraft** (Rome, Ga.)	466,363	544,031	355	37,271	324	216,404	388
490	479	**Frederick & Herrud** (Southfield, Mich.)[21]	465,591	91,430	498	(1,579)	460	25,861	494
491	517	**Rath Packing** (Waterloo, Iowa)[9]	465,434	67,245	499	(9,582)	466	(5,172)	497
492	552	**Research-Cottrell** (Bedminster, N.J.)[12]	465,266	289,011	469	11,593	437	101,586	468
493	512	**Ampco-Pittsburgh** (Pittsburgh)	463,290	331,411	456	12,240	433	97,628	469
494	509	**Barnes Group** (Bristol, Conn.)	463,261	264,548	475	5,041	453	136,745	451
495	608	**Marion** (Mobile, Ala.)[39]	460,690	259,641	477	23,719	388	81,079	475
496	523	**Knudsen** (Los Angeles)	460,329	146,015	494	6,940	450	46,256	489
497	508	**Ceco** (Oak Brook, Ill.)	456,647	233,899	484	13,877	427	126,609	455
498	534	**Illinois Tool Works** (Chicago)	455,520	381,771	430	44,348	303	286,134	344
499	510	**Riegel Textile** (Greenville, S.C.)[9]	455,335	259,209	478	22,963	394	145,499	444
500	522	**Shaklee** (San Francisco)[9]	454,522	191,670	490	24,543	383	105,601	466
		TOTALS	**1,773,381,212**	**1,282,828,236**		**84,223,057**		**587,444,083**	

●Not among the 500 or the Second 500 in 1980.

¶Includes sales from discontinued operations of at least 10%; see explanation of "sales" on page 280.

N.A. Not available.

**Reflects an extraordinary credit of at least 10%; see the explanations of "net income" and "earnings per share" on page 280.

†Average for the year; see the reference to "employees" on page 280.

‡Reflects an extraordinary charge of at least 10%; see the explanations of "net income" and "earnings per share" on page 280.

[46]Figures are for fiscal year ending August 31, 1981.

EMPLOYEES		NET INCOME AS PERCENT OF				EARNINGS PER SHARE			GROWTH RATE 1971-81		TOTAL RETURN TO INVESTORS				INDUSTRY
		SALES		STOCKHOLDERS' EQUITY							1981		1971-81 AVERAGE		
NUMBER	RANK	%	RANK	%	RANK	'81($)	'80($)	'71($)	%	RANK	%	RANK	%	RANK	CODE
8,500	371	—		—		(3.33)†	0.77	(1.08)‡	—		(0.08)	231	7.83	244	20
8,500	372	1.3	431	8.6	388	1.21	0.14	1.12	0.78	389	(5.65)	272	0.10	391	41
8,100	380	4.4	260	13.8	244	2.70	2.78	1.18	8.63	304	12.63	158	4.01	332	27
7,250	399	5.0	209	9.9	367	2.01	2.19	1.29	4.53	365	(4.73)	268	1.73	372	26
5,239†	442	10.2	40	17.1	143	5.05	4.91	0.48	26.53	52	(12.40)	322	25.18	15	26
6,400	421	2.5	383	12.2	299	3.50	2.68	1.54	8.56	308	4.55	205	4.32	319	30
8,259	375	7.2	97	18.4	104	3.49	2.90	0.72	17.10	141	43.71	33	13.71	117	26
1,799	487	4.0	294	26.2	20	2.60	2.56	N.A.	—		—		—		45
2,800	478	—		—		(8.80)	2.66	(5.55)‡	—		(28.97)	413	13.24	126	33
11,736	312	1.8	418	5.6	426	2.49	5.18	2.99**	(1.81)	397	(3.46)	260	3.77	337	22
8,065	384	8.6	115	14.1	236	4.01	4.22	0.01	82.10	1	(19.68)	372	11.69	156	36
962	494	5.2	195	42.2	4	7.05	2.12	1.15	19.88	102	109.51	2	12.01	148	20
5,400	439	5.1	206	16.0	177	2.87	2.80	0.54	18.18	128	(20.16)	374	10.78	175	28
8,096	382	7.7	87	15.2	202	1.05	0.77	0.13	23.23	71	(21.04)	379	22.73	23	36
4,400	459	6.0	149	19.6	81	4.61	3.95	1.24	14.03	197	(8.63)	292	13.39	122	26
9,299	355	3.7	312	13.0	269	2.67	(3.59)	0.98	10.54	272	110.05	1	5.03	300	40
1,202	493	—		—		N.A.	N.A.	N.A.	—		—		—		29
13,529	283	6.0	148	11.6	314	2.23	1.85	0.22	26.06	55	38.25	46	29.69	4	36
4,496	457	14.8	9	91.1	1	N.A.	N.A.	N.A.	—		—		—		33
9,751	348	10.6	32	24.4	27	2.33	1.95	0.46	17.61	135	8.47	178	9.75	201	27
8,100	381	0.4	454	4.5	438	0.55	0.30	0.19**	11.21	258	(18.38)	364	17.83	61	20
2,420	483	13.4	16	20.4	65	5.31	3.97	1.14	16.63	148	33.68	55	13.43	121	49
3,801†	467	—		—		N.A.	N.A.	N.A.	—		—		—		45
9,000	362	2.7	375	17.0	149	3.30	3.56	0.09	43.36	16	48.30	26	17.96	60	23
6,733	412	7.6	88	9.4	377	1.84	2.36	0.69	10.31	277	(30.44)	417	8.61	225	45
8,146	379	2.5	386	7.1	412	1.64	0.92	0.99	5.18	357	19.58	120	4.59	312	40
5,089	444	8.0	74	13.6	252	2.79	2.55	0.60	16.61	149	29.01	70	10.57	179	28
14,858	266	5.4	178	12.8	284	1.94	1.88	0.75	9.97	287	79.61	5	(2.65)	418	27
5,500	436	2.5	390	11.3	326	2.12	2.23**	N.A.	—		39.56	41	—		32
4,202	462	—		—		(2.17)	0.05	0.65	—		1.09	224	8.25	233	10
10,560	330	4.4	258	17.8	121	4.88	3.87	1.64	11.52	253	78.87	6	8.91	218	23
7,311	396	1.2	435	3.6	445	1.17	2.44	2.35	(6.74)	405	12.74	156	(0.28)	398	45
4,189	464	9.2	54	11.1	332	3.24	3.93	1.22	10.26	276	(10.18)	302	9.27	207	32
1,586	489	23.1	3	21.5	46	4.53	3.22	.42‡	26.85	51	(14.19)	342	21.30	31	10
6,754[43]	411	—		—		(12.29)	(3.30)	1.04	—		14.46	149	(5.67)	432	45
3,844	466	17.6	6	21.3	50	3.08	2.55	.44	21.48	87	48.44	25	18.87	55	26
6,200	426	2.3	402	5.7	429	0.84	(0.77)	.67	2.29	377	23.68	103	8.25	232	27
3,717	469	6.0	147	10.4	355	3.75	3.03	2.33	4.87	360	23.16	105	3.91	335	33
3,215	472	8.0	79	17.2	139	N.A.	N.A.	N.A.	—		—		—		26
2,750	480	—		—		(0.45)	2.07	0.83	—		5.93	192	2.21	363	20
2,928	477	—		—		(4.93)	2.15**	6.92**	—		—		—		20
3,100	475	2.5	388	11.4	321	2.21	1.66	0.99	8.36	311	0.48	227	(11.80)	448	45
5,621	432	2.6	376	12.5	288	3.18	3.92	0.38	23.67	64	(35.03)	438	15.68	88	34
7,040	404	1.1	438	3.7	444	0.71	3.51	0.68	0.43	390	(12.57)	323	12.59	138	34
397	498	5.1	199	29.3	14	2.18	1.77	(.31)	—		(56.50)	466	25.95	12	29
2,220	484	1.5	426	14.4	222	2.55	2.46	1.28	7.14	330	0.06	229	5.14	298	20
7,347†	394	3.0	351	11.0	337	4.00	4.57	2.31	5.64	352	19.41	121	1.45	373	34
7,200	401	9.7	46	15.5	194	3.62	3.62	1.01	13.62	204	19.14	123	4.16	325	34
8,900	364	5.0	210	15.8	184	6.09	4.73	0.74	23.46	68	1.93	220	14.05	108	22
1,500	491	5.4	180	23.2	33	3.85	1.92	N.A.	—		(14.66)	344	—		42
15,635,041															

NOTES TO THE FORTUNE DIRECTORY

SALES include service and rental revenues but exclude dividends, interest, and other non-operating revenues. All companies on the list must have derived more than 50% of their sales from manufacturing and/or mining. Sales of subsidiaries are included when they are consolidated; sales from discontinued operations are included when these figures are published. When the sales are at least 10% higher for this reason, there is a symbol (¶) next to the sales figure. All figures are for the year ending December 31, 1981, unless otherwise noted. Sales figures do not include excise taxes collected by the manufacturer, and so the figures for some corporations—most of which sell gasoline, liquor, or tobacco—may be lower than those published by the corporations themselves. When they are at least 5% lower for this reason, there is an asterisk (*) next to the sales figures.

ASSETS are those shown at the company's year-end.

NET INCOME is shown after taxes and after extraordinary credits or charges when any are shown on the income statement. A double asterisk (**) signifies an extraordinary credit reflecting at least 10% of the net income shown, a double dagger (‡) an extraordinary charge of at least 10%. Figures in parentheses indicate a loss.

STOCKHOLDERS' EQUITY is the sum of capital stock, surplus, and retained earnings at the company's year-end. Redeemable preferred stock is excluded when its redemption is either mandatory or outside the control of the company, except in the case of cooperatives.

EMPLOYEES: The figure shown is a year-end total except when it is followed by a dagger (†), in which case it is an average for the year.

EARNINGS PER SHARE: For all companies, the figures shown are the "primary" earnings per share that appear on the company's income statement. These figures are based on a weighted average of the number of common shares and common-stock equivalents outstanding during the year. "Common-stock equivalents" generally include (a) convertible securities whose cash yield is less than two-thirds of the prime rate at the time the securities were issued and (b) options and warrants when the effect of their inclusion in the computation would reduce the "primary" earning per share. Per-share earnings for 1980 and 1981 are adjusted for stock splits and stock dividends. They are not restated for mergers, acquisitions, or accounting changes made after 1971. A double asterisk (**) signifies an extraordinary credit reflecting at least 10% of the net income shown, a double dagger (‡) an extraordinary charge of at least 10%. Results are listed as not available (N.A.) where the companies are cooperatives, joint ventures, or wholly owned subsidiaries of other companies, or if the figures were not published in 1971. The growth rate is the average annual growth, compounded. No growth rate is given if the company had a loss in either 1971 or 1981.

TOTAL RETURN TO INVESTORS includes both price appreciation and dividend yield, i.e., to an investor in the company's stock. The figures shown assume sales at the end of 1981 of stock owned at the end of 1971 or 1980. It has been assumed that any proceeds from cash dividends, the sale of rights and warrant offerings, and stock received in spin-offs were reinvested at the end of the year in which they were received. Returns are adjusted for stock splits, stock dividends, recapitalizations, and corporate reorganizations as they occur; however, no effort has been made to reflect the cost of brokerage commissions or of taxes. Results are listed as not available (N.A.) where shares are not publicly traded or traded on only a limited basis. Where companies have more than one class of shares outstanding, only the more widely held and actively traded has been considered.

Total-return percentages shown are the returns received by the hypothetical investor described above. The ten-year figures are annual averages, compounded. Where corporations were substantially reorganized—e.g., because of mergers—the predecessor companies used in calculating total return are the same as those cited in the footnotes to the earnings-per-share figures.

INDUSTRY CODE numbers used in the directory indicate which industry represents the greatest volume of industrial sales for each company. The numbers refer to the industry groups below, which are based on categories established by the U.S. Office of Management and Budget and issued by the Federal Statistical Policy and Standards Office. They are the same industry groups as those shown in the tables beginning on this page. The median figures in the tables refer only to results of companies among the 500; no attempt has been made to calculate medians in groups with fewer than four companies.

CODE NO.	INDUSTRY
10	Mining, crude-oil production
20	Food
21	Tobacco
22	Textiles, vinyl flooring
23	Apparel
25	Furniture
26	Paper, fiber, and wood products
27	Publishing, printing
28	Chemicals
29	Petroleum refining
30	Rubber, plastic products
31	Leather
32	Glass, concrete, abrasives, gypsum
33	Metal manufacturing
34	Metal products
36	Electronics, appliances
37	Shipbuilding, railroad and transportation equipment
38	Measuring, scientific, photographic equipment
40	Motor vehicles
41	Aerospace
42	Pharmaceuticals
43	Soaps, cosmetics
44	Office equipment (includes computers)
45	Industrial and farm equipment
46	Jewelry, silverware
47	Musical instruments, toys, sporting goods
49	Beverages

WHO DID BEST (AND WORST) AMONG THE 500

TOTAL RETURN TO INVESTORS, 1981

THE TEN HIGHEST

	SALES RANK	
Sheller-Globe	466	110.05%
Savannah Foods & Industries	462	109.51
Lowenstein (M.)	432	99.10
Northwest Industries	105	94.69
American Greetings	478	79.61
Warnaco	481	78.87
Outboard Marine	362	76.59
Armstrong Rubber	448	74.62
Sunbeam	237	74.60
Purex Industries	396	70.83

THE FIVE LOWEST

AM International	342	−73.41%
Commonwealth Oil Refining	314	−71.05
International Harvester	46	−71.03
Fairchild Industries	262	−60.23
McLouth Steel	385	−59.57

THE INDUSTRY MEDIANS

Apparel	37.73%
Beverages	31.85
Musical instruments, toys, sporting goods	27.06
Soaps, cosmetics	22.32
Rubber, plastic products	21.09
Food	18.15
Textiles, vinyl flooring	15.65
Publishing, printing	15.53
Metal products	8.06
Tobacco	5.95
Glass, concrete, abrasives, gypsum	3.40
Pharmaceuticals	3.07
Electronics, appliances	.39
Chemicals	−.95
Paper, fiber, and wood products	−4.13
Motor vehicles	−4.45
Metal manufacturing	−6.08
Shipbuilding, railroad and transportation equipment	−6.24
industrial and farm equipment	−10.29
Measuring, scientific, photographic equipment	−10.38
Office equipment (includes computers)	−18.61
Aerospace	−21.93
Petroleum refining	−23.17
Mining, crude-oil production	−23.90
Leather	N.A.
Furniture	N.A.
Jewelry, silverware	N.A.
All industries	**−.35**

TOTAL RETURN TO INVESTORS, 1971-81

THE TEN HIGHEST

	SALES RANK	
Teledyne	134	31.60%
Intel	363	30.26
NVF	308	30.06
Oak Industries	468	29.69
Nucor	450	29.61
Moore McCormack Resources	377	29.52
Cooper Industries	142	27.76
Northrop	194	27.21
Trinity Industries	380	26.79
Dorchester Gas	390	26.25

THE FIVE LOWEST

Commonwealth Oil Refining	314	−22.20%
AM International	342	−17.32
Chrysler	26	−15.24
United Merchants & Manufacturing	404	−14.88
Saxon Industries	388	−13.62

THE INDUSTRY MEDIANS

Aerospace	15.86%
Mining, crude-oil production	15.43
Shipbuilding, railroad and transportation equipment	14.00
Petroleum refining	13.44
Tobacco	13.33
Metal manufacturing	11.93
Publishing, printing	9.75
Metal products	8.96
Industrial and farm equipment	8.91
Chemicals	8.58
Paper, fiber, and wood products	8.12
Food	7.49
Electronics, appliances	6.91
Measuring, scientific, photographic equipment	6.32
Glass, concrete, abrasives, gypsum	5.85
Apparel	5.76
Pharmaceuticals	5.30
Office equipment (includes computers)	4.88
Motor vehicles	4.81
Textiles, vinyl flooring	3.77
Rubber, plastic products	3.40
Soaps, cosmetics	2.75
Beverages	1.32
Musical instruments, toys, sporting goods	−2.50
Leather	N.A.
Furniture	N.A.
Jewelry, silverware	N.A.
All industries	**8.52**

RETURN ON STOCKHOLDERS' EQUITY

THE TEN HIGHEST

	SALES RANK	
Titanium Metals	469	91.1%
Joseph E. Seagram & Sons	238	59.4
Monfort of Colorado	355	43.6
Savannah Foods & Industries	462	42.2
Northwest Industries	105	41.1
Mitchell Energy & Development	395	35.3
Trinity Industries	380	32.9
Standard Oil (Ohio)	21	32.6
Bendix	86	30.9
SmithKline	195	30.2

THE INDUSTRY MEDIANS

	1981	1980
Tobacco	19.5%	19.8%
Beverages	19.2	15.6
Pharmaceuticals	18.0	17.9
Mining, crude-oil production	17.6	21.0
Publishing, printing	16.4	15.9
Petroleum refining	16.4	19.4
Apparel	16.2	12.8
Soaps, cosmetics	15.8	16.9
Measuring, scientific, photographic equipment	15.6	17.1
Aerospace	15.0	16.2
Food	14.4	14.5
Shipbuilding, railroad and transportation equipment	14.4	14.4
Electronics, appliances	14.3	16.2
Metal products	14.1	15.3
Industrial and farm equipment	13.9	13.3
Chemicals	13.5	13.9
Office equipment (includes computers)	13.3	15.1
Metal manufacturing	12.4	12.9
Paper, fiber, and wood products	12.0	12.8
Rubber, plastic products	10.4	5.0
Glass, concrete, abrasives, gypsum	9.6	11.3
Musical instruments, toys, sporting goods	9.2	12.6
Textiles, vinyl flooring	7.8	8.1
Motor vehicles	7.6	8.1
Leather	N.A.	N.A.
Furniture	N.A.	N.A.
Jewelry, silverware	N.A.	N.A.
All industries	**13.8**	**14.4**

RETURN ON SALES

THE TEN HIGHEST

	SALES RANK	
Joseph E. Seagram & Sons	238	100.5%
Newmont Mining	333	41.6
Belco Petroleum	484	23.1
Freeport McMoRan	346	19.1
SmithKline	195	18.6
Fort Howard Paper	486	17.6
Superior Oil	187	17.6
Natomas	232	15.1
Titanium Metals	469	14.8
Hughes Tool	213	14.5

THE INDUSTRY MEDIANS

	1981	1980
Mining, crude-oil production	11.7%	9.2%
Pharmaceuticals	9.1	9.1
Tobacco	7.9	7.9
Publishing, printing	7.1	6.2
Measuring, scientific, photographic equipment	6.9	6.9
Office equipment (includes computers)	6.1	6.0
Beverages	5.5	4.8
Chemicals	5.4	5.2
Paper, fiber, and wood products	5.0	5.0
Soaps, cosmetics	5.0	5.9
Industrial and farm equipment	4.6	4.3
Shipbuilding, railroad and transportation equipment	4.5	4.1
Metal manufacturing	4.4	4.1
Petroleum refining	4.4	5.5
Metal products	4.4	4.7
Electronics, appliances	4.4	5.3
Aerospace	4.0	4.1
Apparel	3.4	3.6
Musical instruments, toys, sporting goods	3.4	3.7
Food	3.3	3.0
Glass, concrete, abrasives, gypsum	3.1	3.7
Rubber, plastic products	3.0	1.5
Textiles, vinyl flooring	2.9	2.8
Motor vehicles	2.6	2.6
Leather	N.A.	N.A.
Furniture	N.A.	N.A.
Jewelry, silverware	N.A.	
All industries	**4.6**	**4.8**

CHANGES IN SALES

THE TEN BIGGEST INCREASES

	SALES RANK	
Nabisco Brands	60	126.5%
Cooper Industries	142	70.2
Du Pont	12	67.1
Penn Central	123	66.3
Geosource	381	65.6
ConAgra	255	63.3
M/A-Com	464	61.6
Gates Learjet	444	60.9
Wang Laboratories	341	57.6
Warner Communications	135	57.2

THE TEN BIGGEST DECREASES

Esmark	127	45.7%
GAF	403	45.4
Belco Petroleum	484	43.2
Envirotech	485	24.9
Commonwealth Oil Refining	314	21.1
Briggs & Stratton	442	19.7
Handy & Harman	425	19.7
Peabody International	449	18.7
Gulf Resources & Chemical	459	17.1
Macmillan	487	16.9

THE INDUSTRY MEDIANS

Mining, crude-oil production	19.5%
Petroleum refining	15.3
Publishing, printing	14.2
Musical instruments, toys, sporting goods	13.7
Office equipment (includes computers)	12.7
Aerospace	10.9
Measuring, scientific, photographic equipment	9.6
Tobacco	9.1
Rubber, plastic products	9.1
Apparel	8.9
Electronics, appliances	8.6
Food	8.5
Pharmaceuticals	8.1
Chemicals	7.9
Metal manufacturing	7.2
Metal products	6.8
Beverages	6.8
Motor vehicles	6.7
Soaps, cosmetics	6.7
Industrial and farm equipment	6.6
Shipbuilding, railroad and transportation equipment	6.3
Paper, fiber, and wood products	5.8
Textiles, vinyl flooring	4.0
Glass, concrete, abrasives, gypsum	3.9
Leather	N.A.
Furniture	N.A.
Jewelry, silverware	N.A.

CHANGES IN PROFITS

THE TEN BIGGEST INCREASES*

	SALES RANK	
Kellwood	435	1,543.1%
Joseph E. Seagram & Sons	238	1,221.4
Outboard Marine	362	1,049.7
Rohr Industries	452	601.5
Harnischfeger	412	513.0
Genesco	387	423.1
Wheeling-Pittsburgh Steel	288	309.3
Springs Mills	329	277.2
Republic Steel	87	272.8
M. Lowenstein	432	256.9

THE TEN BIGGEST DECREASES*

NVF	308	97.0%
Warner-Lambert	119	95.2
Charter	75	84.6
RCA	44	82.9
Crown Central Petroleum	242	82.4
Bausch & Lomb	433	81.0
Miles Laboratories	372	80.3
Esmark	127	80.1
Barnes Group	494	79.2
Asarco	234	78.9

*Listings exclude money losers.

THE INDUSTRY MEDIANS

	INCREASES
Rubber, plastic products	62.0%
Musical instruments, toys, sporting goods	52.8
Apparel	19.1
Aerospace	16.3
Beverages	15.1
Publishing, printing	13.5
Office equipment (includes computers)	13.0
Industrial and farm equipment	12.7
Measuring, scientific, photographic equipment	12.4
Food	10.6
Tobacco	10.2
Chemicals	10.1
Metal products	8.8
Electronics, appliances	8.8
Motor vehicles	8.0
Pharmaceuticals	6.2
Shipbuilding, railroad and transportation equipment	6.2
Metal manufacturing	4.3
Paper, fiber, and wood products	4.0
Mining, crude-oil production	1.6
	DECREASES
Glass, concrete, abrasives, gypsum	15.1%
Petroleum refining	7.6
Textiles, vinyl flooring	3.1
Soaps, cosmetics	1.8
Leather	N.A.
Furniture	N.A.
Jewelry, silverware	N.A.

SALES PER DOLLAR OF STOCKHOLDERS' EQUITY

THE TEN HIGHEST

	SALES RANK	
Commonwealth Oil Refining	314	$89.49
AM International	342	62.13
Lockheed	57	59.25
Monfort of Colorado	355	22.23
Frederick & Herrud	490	18.00
Land O'Lakes	115	15.78
Gold Kist	212	15.58
DPF	399	14.55
Mid-American Dairymen	283	13.70
Agway	100	13.49

THE FIVE LOWEST

AMAX	152	$1.10
Superior Oil	187	.96
Belco Petroleum	484	.93
Newmont Mining	333	.69
Joseph E. Seagram & Sons	238	.59

THE INDUSTRY MEDIANS

Shipbuilding, railroad and transportation equipment	$5.05
Food	4.33
Aerospace	4.25
Petroleum refining	4.19
Rubber, plastic products	4.09
Apparel	3.68
Motor vehicles	3.37
Metal products	3.27
Textiles, vinyl flooring	3.13
Electronics, appliances	3.12
Soaps, cosmetics	2.98
Beverages	2.89
Metal manufacturing	2.82
Musical instruments, toys, sporting goods	2.72
Industrial and farm equipment	2.70
Tobacco	2.51
Glass, concrete, abrasives, gypsum	2.50
Chemicals	2.44
Publishing, printing	2.35
Paper, fiber, and wood products	2.31
Measuring, scientific, photographic equipment	2.26
Mining, crude-oil production	2.18
Pharmaceuticals	2.00
Office equipment (includes computers)	1.93
Leather	N.A.
Furniture	N.A.
Jewelry, silverware	N.A.
All industries	**2.97**

SALES PER EMPLOYEE

THE TEN HIGHEST

	SALES RANK	
National Cooperative Refinery Association	374	$1,515,946
Pacific Resources	299	1,461,981
Commonwealth Oil Refining	314	1,266,139
Marion	495	1,160,428
Tosco	117	1,082,489
Amerada Hess	33	1,041,132
Standard Oil of California	5	1,021,788
American Petrofina	164	910,559
Crown Central Petroleum	242	898,127
Texaco	4	863,625

THE FIVE LOWEST

Kellwood	435	$36,881
Allegheny International	204	36,172
American Greetings	478	32,926
National Semiconductor	287	32,413
General Instrument	349	31,253

THE INDUSTRY MEDIANS

Petroleum refining	$512,868
Mining, crude-oil production	302,784
Beverages	139,272
Chemicals	119,395
Food	114,979
Metal manufacturing	107,165
Paper, fiber, and wood products	102,481
Soaps, cosmetics	97,965
Tobacco	95,286
Pharmaceuticals	81,745
Glass, concrete, abrasives, gypsum	80,963
Rubber, plastic products	78,806
Motor vehicles	78,790
Publishing, printing	77,860
Industrial and farm equipment	76,804
Shipbuilding, railroad and transportation equipment	76,673
Metal products	75,677
Aerospace	70,175
Musical instruments, toys, sporting goods	67,690
Measuring, scientific, photographic equipment	62,499
Electronics, appliances	60,385
Office equipment (includes computers)	54,304
Textiles, vinyl flooring	51,161
Apparel	42,135
Leather	N.A.
Furniture	N.A.
Jewelry, silverware	N.A.
All industries	**86,381**

ASSETS PER EMPLOYEE

THE TEN HIGHEST

	SALES RANK	
National Cooperative Refinery Association	374	$810,100
Amerada Hess	33	700,452
Superior Oil	187	665,314
Marion	495	654,008
Murphy Oil	167	576,834
Pacific Resources	299	548,816
Standard Oil of California	5	547,122
Shell Oil	13	539,747
Natomas	232	525,025
Getty Oil	23	498,555

THE FIVE LOWEST

VF	378	$21,028
Kellwood	435	20,927
American Bakeries	451	14,562
DPF	399	14,323
EG&G	391	12,519

THE INDUSTRY MEDIANS

Mining, crude-oil production	$383,787
Petroleum refining	314,801
Beverages	95,828
Chemicals	94,299
Paper, fiber, and wood products	92,023
Metal manufacturing	82,380
Tobacco	78,730
Pharmaceuticals	74,388
Glass, concrete, abrasives, gypsum	64,337
Publishing, printing	57,924
Industrial and farm equipment	57,258
Soaps, cosmetics	57,175
Food	56,941
Office equipment (includes computers)	54,858
Metal products	53,151
Shipbuilding, railroad and transportation equipment	52,104
Motor vehicles	51,786
Rubber, plastic products	48,061
Aerospace	46,689
Electronics, appliances	46,216
Measuring, scientific, photographic equipment	45,935
Musical instruments, toys, sporting goods	44,610
Textiles, vinyl flooring	30,227
Apparel	23,278
Leather	N.A.
Furniture	N.A.
Jewelry, silverware	N.A.
All industries	**60,437**

THE MONEY LOSERS

	SALES RANK	LOSS
Ford Motor	6	$1,060,100,000*
Chrysler	26	475,600,000*
Kaiser Steel	310	437,455,000
International Harvester	46	393,128,000*
Lockheed	57	288,800,000
AM International	342	245,051,000
Commonwealth Oil Refining	314	212,309,000*
American Motors	162	136,563,000*
Coastal	59	96,399,000
Gulf Resources & Chemical	459	77,929,000
U.S. Industries	285	62,671,000
Envirotech	484	55,987,000*
Cities Service	39	49,200,000
McLouth Steel	385	40,000,000*
Fiat-Allis	474	39,975,000*
Allis-Chalmers	188	28,841,000
DPF	399	24,364,000
Pabst Brewing	397	23,536,000
J.P. Stevens	189	22,874,000
Jos. Schlitz Brewing	335	20,604,000
Hoover	376	18,778,000
Westmoreland Coal	480	14,775,000
Lever Brothers	281	11,500,000*
CertainTeed	334	10,916,000
Rath Packing	491	9,582,000
American Bakeries	451	7,690,000
Scovill	331	4,534,000
Varian Associates	400	3,554,000
United Merchants & Manufacturers	404	2,873,000*
Dayco	364	2,678,000
Frederick & Herrud	490	1,579,000

*Also lost money in 1980.

Reprints of this year's FORTUNE Directory will be available in September. The directory will include the FORTUNE 500 (from this issue), the Second 500 (published June 14), and the non-industrial "50 Largest" lists (published July 12). Single copies of the reprints are $7 each; 25 to 99 copies, $6 each; 100 or more, $5 each. Please address inquiries and payment to Fortune, Double 500 Directory 1982, P.O. Box 8001, Trenton, N.J. 08650. Payment must accompany order.

ARRIVALS AND DEPARTURES

NEWCOMERS TO THE 500

	SALES RANK
American Greetings	478
American Hoechst	225
Ampco-Pittsburgh	493
Brown-Forman Distillers	472
BASF Wyandotte	307
BATUS	90
Deluxe Check Printers	470
E-Systems	439
Fort Howard Paper	486
L.B. Foster	458
Gates Learjet	444
Georgia Kraft	489
Geosource	381
Illinois Tool Works	498
James River Corp. of Virginia	447
Kerr Glass Manufacturing	479
Knudsen	496
M/A-Com	464
Mallinckrodt	477
Marion	495
Mid-America Dairymen	283
Oak Industries	468
Palm Beach	474
Research-Cottrell	492
Shaklee	500
Titanium Metals Corp. of America	469
Tyson Foods	471

RETURNED TO THE 500*

	SALES RANK
Armstrong Rubber (1977: 489)	448
Arvin Industries (1979: 451)	476
Barnes Group (1979: 480)	494
Ceco (1979: 492)	497
Engelhard (1966: 271)	180
Farmers Union Central Exchange (1973: 443)	265
Foster Wheeler (1977: 207)	220
Natomas (1978: 458)	232
Northwestern Steel & Wire (1979: 458)	488
Rath Packing (1977: 492)	491
Riegel Textile (1968: 450)	499

*Figures in parentheses indicate year and sales rank the last time the company was listed.

DISPLACED FROM THE 500

	1980 SALES RANK
American Broadcasting[1]	168
Ampex[2]	493
Bunker Ramo[3]	486
Cannon Mills[4]	405
Castle & Cooke[1]	210
Clark Oil & Refining[5]	221
Coca-Cola Bottling Co. of N.Y.[6]	477
Columbia Pictures Industries[1]	389
Conoco[7]	14
Consolidated Aluminum[8]	318
Crouse-Hinds[9]	367
CBS[1]	94
Fairmont Foods[1]	453
Fleetwood Enterprises	485
General Host[1]	344
General Refractories	487
GK Technologies[9]	275
Hobart[10]	402
H.P. Hood	452
International Flavors & Fragrances	498
Iowa Beef Processors[11]	81
Kennecott[12]	169
Marley[13]	442
McDonough	497
Memorex[14]	358
Metromedia[1]	496
MCA[1]	256
Norris Industries[15]	436
Oscar Mayer[16]	202
Questor	492
Sperry & Hutchinson[17]	357
St. Joe Minerals[18]	261
Standard Brands[19]	128
Texasgulf[20]	286
Twentieth Century-Fox Film[1]	337
U.S. Filter[21]	334
United Refining[22]	404
White Motor[23]	350

[1]No longer classified as an industrial.
[2]Acquired by Signal Companies (rank: 70) January 15, 1981.
[3]Acquired by Allied (rank: 55) July 1, 1981.
[4]Merged with Pacific Holding March 30, 1982.
[5]Acquired by Apex Oil October 30, 1981.
[6]Figures are no longer made public.
[7]Acquired by Du Pont (rank: 12) September 30, 1981.
[8]Acquired by Cooper Industries (rank: 142) April 29, 1981.
[9]Acquired by Penn Central (rank: 123) May 14, 1981.
[10]Acquired by Dart & Kraft (rank: 29) April 29, 1981.
[11]Acquired by Occidental Petroleum (rank: 18) August 12, 1981.
[12]Acquired by Standard Oil of Ohio (rank: 21) June 4, 1981.
[13]Acquired by Kohlberg Kravis Roberts May 26, 1981.
[14]Acquired by Burroughs (rank: 128) December 3, 1981.
[15]Acquired by Norind Holdings December 8, 1981.
[16]Acquired by General Foods (rank: 52) May 5, 1981.
[17]Acquired by Baldwin-United (1980 rank: 39, in the 50 Largest Diversified Financials) October 12, 1981.
[18]Acquired by Fluor August 3, 1981.
[19]Merged with Nabisco (1980 rank: 152) to form Nabisco Brands (rank: 60) July 6, 1981.
[20]Acquired by Elf Aquitaine (1980 rank: 9, in the 500 Largest Industrials Outside the U.S.) September 28, 1981.
[21]Acquired by Ashland Oil (rank: 35) March 31, 1981.
[22]Acquired by Coral Petroleum January 26, 1981.
[23]In liquidation.

ALPHABETICAL INDEX OF THE 500 LARGEST INDUSTRIALS

COMPANY	RANK
ACF Industries	321
AM International	342
AMAX	152
AMF	245
AMP	274
Abbott Laboratories	172
Agway	100
Air Products & Chemicals	228
Airco	282
Akzona	279
Allegheny International	204
Allied	55
Allis-Chalmers	188
Alumax	284
Aluminum Co. of America	78
Amerada Hess	33
American Bakeries	451
American Brands	96
American Can	81
American Cyanamid	106
American Greetings	478
American Hoechst	225
American Hoist & Derrick	437
American Home Products	93
American Motors	162
American Petrofina	164
American Standard	165
Ampco-Pittsburgh	493
Amstar	197
Amsted Industries	345
Anchor Hocking	319
Anderson Clayton	202
Anheuser-Busch	99
Arcata	373
Archer-Daniels-Midland	107
Armco	51
Armstrong Rubber	448
Armstrong World Industries	256
Arvin Industries	476
Asarco	234
Ashland Oil	35
Atlantic Richfield	10
Avery International	416
Avnet	266
Avon Products	160
BASF Wyandotte	307
BATUS	90
Baker International	185
Ball	358
Bally Manufacturing	339
Bangor Punta	361
Barnes Group	494
Bausch & Lomb	433
Baxter Travenol Laboratories	239
Beatrice Foods	41
Beckman Instruments	423
Becton Dickinson	300
Belco Petroleum	484
Bell & Howell	393
Bemis	386
Bendix	86
Bethlehem Steel	47
Big Three Industries	351
Black & Decker Manufacturing	248
Blue Bell	249
Boeing	31
Boise Cascade	143
Borden	85
Borg-Warner	155
Briggs & Stratton	442
Bristol-Myers	113
Brockway Glass	368
Brown-Forman Distillers	472
Brown Group	263
Brunswick	260
Bucyrus-Erie	475
Burlington Industries	132
Burroughs	128
CBI Industries	326
CF Industries	303
CPC International	89
Cabot	223
Cameron Iron Works	324
Campbell Soup	153
Campbell Taggart	270
Capital Cities Communications	438
Carnation	121
Carpenter Technology	440
Caterpillar Tractor	37
Ceco	497
Celanese	104
Central Soya	199
CertainTeed	334
Cessna Aircraft	302
Champion International	97
Champion Spark Plug	354
Charter	75
Chesebrough-Pond's	236
Chicago Pneumatic Tool	482
Chromalloy American	253
Chrysler	26
Cincinnati Milacron	322
Cities Service	39
Clark Equipment	259
Clorox	389
Cluett Peabody	348
Coastal	59
Coca-Cola	58
Colgate-Palmolive	72
Collins & Aikman	431
Colt Industries	178
Combustion Engineering	102
Commonwealth Oil Refining	314
ConAgra	255
Cone Mills	406
Consolidated Foods	63
Consolidated Papers	455
Continental Group	74
Control Data	144
Cooper Industries	142
Coors (Adolph)	323
Copperweld	424
Corning Glass Works	226
Crane	224
Crown Central Petroleum	242
Crown Cork & Seal	257
Crown Zellerbach	140
Cummins Engine	200
Cyclops	309
DPF	399
Dan River	417
Dana	158
Dart & Kraft	29
Data General	379
Dayco	364
Dean Foods	382
Deere	65
Deluxe Check Printers	470
Dennison Manufacturing	441
Dexter	463
Diamond International	261
Diamond Shamrock	112
Digital Equipment	137
Donnelly (R.R.) & Sons	271
Dorchester Gas	390
Dorsey	456
Dover	311
Dow Chemical	24
Dow Corning	364
Dow Jones	414
Dresser Industries	83
Du Pont (E.I.) de Nemours	12
EG&G	391
Eagle-Picher Industries	422
Eastman Kodak	28
Eaton	139
Economics Laboratory	421
Emerson Electric	118
Emhart	215
Engelhard	180
Envirotech	485
Esmark	127
E-Systems	439
Ethyl	214
Evans Products	243
Ex-Cell-O	292
Exxon	1
FMC	109
Fairchild Industries	262
Farmers Union Central Exchange	265
Farmland Industries	64
Federal Co.	296
Federal-Mogul	347
Federal Paper Board	465
Ferro	392
Fiat-Allis	473
Fieldcrest Mills	460
Figgie International	371
Firestone Tire & Rubber	88
Ford Motor	6
Fort Howard Paper	486
Foster (L.B.)	458
Foster Wheeler	220
Foxboro	430
Frederick & Herrud	490
Freeport-McMoRan	346
Fruehauf	183
GAF	403
GATX	278
Gannett	258
Gates Learjet	444
General Cinema	350
General Dynamics	76
General Electric	11
General Foods	52
General Instrument	349
General Mills	80
General Motors	3
General Signal	219
General Tire & Rubber	163
Genesco	387
Georgia Kraft	489
Georgia-Pacific	67
Geosource	381
Gerber Products	419
Getty Oil	23
Gifford-Hill	446
Gillette	173
Gold Kist	212
Goodrich (B.F.)	138
Goodyear Tire & Rubber	38
Gould	179
Grace (W.R.)	53
Great Northern Nekoosa	240
Greyhound	82
Grumman	203
Gulf Oil	9
Gulf Resources & Chemical	459
Gulf & Western Industries	61
Hammermill Paper	254
Handy & Harman	425
Harcourt Brace Jovanovich	453
Harnischfeger	412
Harris	229
Harsco	286
Hart Schaffner & Marx	357
Heileman (G.) Brewing	360
Heinz (H.J.)	111
Hercules	157
Hershey Foods	244
Heublein	227
Hewlett-Packard	110
Honeywell	69
Hoover	376
Hoover Universal	445
Hormel (Geo. A.)	247
Hughes Tool	213
Hyster	420
IC Industries	92
INTERCO	170
Ideal Basic Industries	483
Idle Wild Foods	436
Illinois Tool Works	498
Ingersoll-Rand	120
Inland Steel	103
Insilco	398
Intel	363
Interlake	313
International Business Machines	8
International Harvester	46
International Minerals & Chemical	196
International Multifoods	298
International Paper	77
International Telephone & Telegraph	14
James River Corp. of Virginia	447
Johnson Controls	291
Johnson & Johnson	68
Joy Manufacturing	297

Most of the figures in this FORTUNE 500 Directory were prepared by reporter Monci Jo Williams, who is responsible for the columns reporting on companies' sales, assets, net income, stockholders' equity, employees, net income as a proportion of sales and of stockholders' equity, and the industry code numbers. Figures on earnings per share and total return to investors were prepared by Claudine Knight.

Kaiser Aluminum & Chemical 136
Kaiser Steel 310
Kane-Miller 401
Kellogg 175
Kellwood 435
Kerr Glass Manufacturing 479
Kerr-McGee 101
Kidde 149
Kimberly-Clark 147
Knight-Ridder Newspapers 272
Knudsen 496
Koppers 190

LTV 40
Land O'Lakes 115
Lear Siegler 235
Lever Brothers 281
Levi Strauss 148
Libbey-Owens-Ford 275
Lilly (Eli) 154
Lipton (Thomas J.) 340
Litton Industries 79
Lockheed 57
Lone Star Industries 328
Louisiana Land & Exploration 273
Louisiana-Pacific 312
Lowenstein (M.) 432
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M/A-Com 464
MAPCO 182
Macmillan 487
Magic Chef 402
Mallinckrodt 477
Manville 181
Marathon Oil 36
Marion 495
Marmon Group Inc. 208
Martin Marietta 130
Maryland Cup 411
Masco 338
Masonite 454
Mattel 330
McCormick 408
McDermott 108
McDonnell Douglas 45
McGraw-Edison 168
McGraw-Hill 294
McLouth Steel 385
Mead 146
Merck 145
Mid-America Dairymen 283
Midland Cooperatives 467
Midland-Ross 332
Miles Laboratories 372
Minnesota Mining & Manufacturing 54
Mitchell Energy & Development 395
Mobil 2
Mohasco 415
Monfort of Colorado 355
Monsanto 50
Moore McCormack Resources 377
Morton-Norwich Products 318
Motorola 126
Murphy Oil 167

NCR 116
NL Industries 156
NVF 308
Nabisco Brands 60
Nalco Chemical 407
Nashua 410
National Can 233
National Cooperative Refinery Association 374
National Distillers & Chemical 218
National Gypsum 317
National Semiconductor 287
National Service Industries 343
National Starch & Chemical 405
National Steel 94
Natomas 232
New York Times 344
Newmont Mining 333
North American Philips 131
Northrop 194
Northwest Industries 105
Northwestern Steel & Wire 488
Norton 264
Norton Simon 141
Nucor 450

Oak Industries 468
Occidental Petroleum 18
Ogden 174
Olin 193
Outboard Marine 362
Owens-Corning Fiberglas 169
Owens-Illinois 98

PACCAR 216
PPG Industries 122
Pabst Brewing 397
Pacific Resources 299
Palm Beach 474
Parker-Hannifin 295
Peabody International 449
Peavey 352
Penn Central 123
Pennwalt 280
Pennzoil 159
PepsiCo 49
Perkin-Elmer 293
Pfizer 133
Phelps Dodge 246
Philip Morris 43
Phillips Petroleum 15
Pillsbury 129
Pitney Bowes 252
Polaroid 251
Porter (H.K.) 418
Potlatch 336
Procter & Gamble 25
Purex Industries 396

Quaker Oats 161
Quaker State Oil Refining 327

RCA 44
Ralston Purina 73
Rath Packing 491
Raychem 461
Raytheon 62
Reichhold Chemicals 320
Republic Steel 87
Research-Cottrell 492
Revere Copper & Brass 353
Revlon 171
Rexnord 290
Reynolds (R.J.) Industries 32
Reynolds Metals 114
Richardson-Vicks 268
Riegel Textile 499
Robertson (H.H.) 413
Rockwell International 48
Rohm & Haas 206
Rohr Industries 452

SCM 201
St. Regis Paper 151
Savannah Foods & Industries 462
Saxon Industries 388
Schering-Plough 210
Schlitz (Jos.) Brewing 335
Scott & Fetzer 409
Scott Paper 175
Scovill 331
Seagram (Joseph E.) & Sons 238
Searle (G.D.) 304
Shaklee 500
Shell Oil 13
Sheller-Globe 466
Sherwin-Williams 231
Signal Companies 70
Signode 394
Singer 150
Smith (A.O.) 366
Smith International 277
SmithKline 195
Sonoco Products 457
Southwest Forest Industries 369
Sperry 66
Springs Mills 329
Square D 289
Squibb 207
Staley (A.E.) Manufacturing 192
Standard Oil of California 5
Standard Oil (Indiana) 7
Standard Oil (Ohio) 21
Stanley Works 315
Stauffer Chemical 217
Sterling Drug 211
Stevens (J.P.) 189
Stokely-Van Camp 443
Storage Technology 325
Sun 17
Sun Chemical 434
Sunbeam 237
Sundstrand 305
Superior Oil 187
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